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COLON BACILLUS PYELONEPHRITIS

ITS NATURE AND POSSIBLE PREVENTION *

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It is not our ambition to present an old subject, the etiology and nature of colon pyelitis, in a spectacular manner. We merely wish to give the results of our own clinical and laboratory observations on the lesions produced and etiologic factors concerned in the production of the colon type of renal infection, mindful of the fact that some of our views may seem radical departures from the beaten path of previously existing opinions. Granting the correctness of our contentions concerning the manner of production of the disease and the nature of the lesion resulting, prevention of infection in certain types of cases becomes not only a fond hope but also a logical possibility.

We shall make no attempt to reproduce the evidence leading us to accept the following views as to the mode of origin and pathologic nature of colon bacillus infection of the kidney. These facts are given in detail in three previous communications.[1]

We believe and have produced evidence to show that renal infections are as a rule hematogenous. Colon bacilli circulate in the blood during the early hours of symptoms due to colon pyelonephritis, and can be demonstrated by blood culture. In a limited number of cases blood infection has been demonstrated to be primary, followed in order by albuminuria, bacilluria and pyuria. The portal of entry of bacillus into the blood stream is not always demonstrable; the intestine, a purulent urethra or prostate, and an inflamed bladder are the commonest sources of bacilli. We do not wish to be understood to deny the occurrence of renal infection by direct extension along the lumen of the ureter, in cases in which there is an incompetent ureterovesical valve, or to state that pure lymphatic extension is not occasionally the cause of renal infection; yet the recovery of bacilli from the blood stream in such cases leads us seriously to doubt the occurrence of renal infection by either of these methods without the intervention of the blood stream.

On reaching the kidney the bacilli are arrested in the glomeruli, through which they pass readily, without producing damage, into the tubule. Failure to produce glomerular lesions is due to low pathogenicity, with lack of pus-producing ability, of the colon bacillus for the human kidney. Once the bacilli reach the tubules, they pass to the pelvis and produce a pyelitis, multiplying both in the recesses of calices and in the mucosa of the pelvis and ureter. The portion of the kidney damaged during the process of excretion of this organism is the convoluted tubule, as evidenced in the few cases available for microscopic examination, by cloudy swelling, but clinically by marked decrease in the output of phenolsulphonephthalein. Chiefly because of this clinical evidence of renal tissue damage the term "colon pyelonephritis" is preferable to "colon pyelitis" for the acute stage of the disease.

Damage to the convoluted tubules as a result of colon infection of the kidney is of short duration. These kidneys return to normal function in many cases within a period of from ten days to two weeks, and the chance kidney seen at necropsy in cases in which there has been a recent colon infection may show no lesions and be passed by the pathologist as normal kidneys. At this stage of the disease the urine still shows bacilli and usually some pus. In sections stained for bacteria, the mucosa of the pelvis is seen to contain many bacilli growing among the epithelial cells, but none are to be found in the kidney tissue save occasional bacteria in the lymphatic channels, evidence of reascending infection from the pelvis back into the kidney tissue. In other words, an acute colon pyelonephritis in its subacute and chronic state becomes an almost pure pyelitis.

As a result of the activity of the colon bacillus in the pelvic mucosa, and repeated injury to the kidney tissue from frequent excursions of the bacilli from the pelvis, the chronic stage of the disease shows a thickened, lax, dilated pelvis lined with thickened mucosa, and infiltrated with lymphocytes and some pus cells. In the tips of the papillae there is scar tissue formation and lymphocyte infiltration with narrowing of the cortex chiefly from distention. The ureter shows the same chronic changes, and along with the bladder mucosa contributes largely to the production of pyuria. As a result of stasis either from obstruction or as the result of relaxation of the pelvis due to the infection, the end stage of a colon bacillus infection is pyonephrosis.

With the foregoing bacteriologic and pathologic findings as a basis, we have studied the evidence of immunity production in colon bacillus pyelonephritis under three headings:

(*a*) Evidence of the natural production of immunity as a result of accidental infection.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Crabtree, E. G.: Observations on the Etiology of Renal Infection, Lancet-Clinic, Jan. 29, 1916. Cabot, Hugh, and Crabtree, E. G.: A Classification of Renal Infection with Particular Reference to Treatment, Boston Med. and Surg. Jour., June 1, 1916; The Etiology of Non-Tuberculous Renal Infections, read at the Triennial Congress of Physicians and Surgeons, Washington, May, 1916, Surg., Gynec. and Obst., 16, 23, 495.

(*b*) Evidence of artificial production of immunity in chronic cases with pyuria vaccination.

(*c*) Evidence of the artificial production of immunity in uninfected cases with a view of preventing infection as a complication to operation.

There seems to be no entirely satisfactory test to determine the amount of protective reaction the body elaborates in response to bacterial invasion. The most satisfactory means of estimating the factor for cocci, particularly the staphylococci, is Wright's opsonic index. Unfortunately there are a group of organisms, including the colon bacillus, which are phagocyted by leukocytes to only a small degree and for which the opsonic index provides an unsatisfactory control. It is a well recognized fact that agglutinin production and the production of bactericidal bodies do not take place *in the same degree, yet the production of agglutinins is attended by an increase in bactericidins,* and for certain organisms like the colon group is the most satisfactory simple test. We have made use of it in these investigations, realizing its limitations, yet depending on clinical evidences to substantiate laboratory evidences of afforded protection.

EVIDENCE OF NATURAL PRODUCTION OF IMMUNITY AS A RESULT OF SPONTANEOUS ACCIDENTAL COLON INFECTION

The normal adult individual harboring colon bacilli in his intestine and subject to occasional wound infection in which this organism may be concerned is generally recognized to carry about protective antibodies expressed in terms of agglutinin titer of from 1:10 to 1:40 for the common intestinal varieties of this organism. This normal resistance to infection may be low at times. During the past two years we have *observed that the cases of so-called idiopathic colon* pyelonephritis which have come to our clinic in which there could be demonstrated no abnormality of the kidney or lower urinary tract occurred in patients whose normal resistance had been lowered from overwork, underfeeding, *recent or chronic illness,* recent pregnancy, or acute intestinal disturbances. In other words, they occurred in patients whose normal resistance had been lowered, and *in two of these* the patient's serum did not agglutinate his own bacillus in 1:5 dilution.

TABLE 1.—INCREASED AGGLUTINATING POWER OF SERUM

Case	Diagnosis	Pyelonephritis	Agglutinin Titer of Serum for Colon Bacillus Recovered from the Patient's Urine		After Pyelonephritis
			Entrance		
			Weak	Strong	Strong
1	Renal calculus.	Postoperative............	1: 10	0	1: 160
2	Prostate.......	During drainage..........	1: 20	0	1: 60
3	Old pyelitis of pregnancy.	Recurrent pyelonephritis..	....	1: [illegible]	1: 250
4	Urethral obstruction.	4 attacks of colon epididymitis in 3 months.	....	.....	1: 600

We are also convinced that prostatics seen and operated on within from three to four weeks following a pyelonephritis are better operative risks, owing in great measure to acquired immunity.

In support of this view we present evidence of increased agglutinating power of the serum in three patients recovering from pyelonephritis and from the fourth attack of colon epididymitis 1). In Case 4 there were three types of bacteria ent, *B. coli,* a large staphylococcus, and an unkno bacillus. The patients' serum did not agglutinate t last two organisms mentioned.

EVIDENCE OF ARTIFICIAL PRODUCTION OF IMMUNITY I CHRONIC PYELITIS BY USE OF VACCINES

It is extremely unlikely that immunity conferred b recent infection, while largely responsible for th course of the disease, is at all lasting. In a group c nineteen cases in which there had been clinical symp toms pointing definitely to a colon infection of th kidney from two months to one year preceding thi investigation, only two showed an agglutinin titer ove 1:30. One of these showed a titer of 1:40 and on of 1:80. After vaccine treatment three cases showe 1:600, 1:1,000 and a third 1:1,200. One case showe no definite agglutination *in any dilution.*

It is recognized that vaccine treatment of thes cases, while beneficial to symptoms, is, as a rule, n curative of the condition. This fact is not surprisi in view of our belief, expressed above, that the lesi in the kidney is chiefly of the mucosa rather than the renal tissue. We know of no evidence to sh that bactericidal products in the blood reach the ur as such save in rare instances, and then in amo insufficient to produce beneficial effects.

EVIDENCE OF ARTIFICIAL PRODUCTION OF IMMU IN UNINFECTED CASES WITH THE AIM OF PREVENTING INFECTION AS A COMPLICATION OF OPERATION

The ideal case for study is the prostatic with fected urine who undergoes *some form of* dra preliminary to operation either with inlying cat suprapubic puncture or the two-stage opera Almost without exception these patients show rise of temperature during the periods of drai often presenting symptoms of an acute pyeloneph Renal functional tests with phenolsulphonephth are apt to show an immediate drop, owing to decompression. In those cases in which a pyel phritis develops, there is a still further decrease output of the drug simultaneous with the onset symptoms, followed in from ten days to two we *by a return to somewhat below the former high le*

Believing that the relief of back pressure on kidney causes only temporary and not serious dist bance, and that the largest element of danger to patient is renal infection, we have endeavored to el inate the latter by the administration of mixed c vaccines during the periods of preliminary prepara Vaccination was begun where possible a week b the patient was admitted to the hospital, and conti at the beginning of these investigations up to the of operation, but later throughout the *patient's* valescence.

The preparation of such a colon vaccine is n *difficult because of the large number of strain* colon bacilli. Eighteen cultures of colon b obtained from urine, from blood cultures and cultures from the vagina in infants were empl By agglutination tests either with serum from patient from whom the culture was obtained, animal immunization, five cultures were found produced serums which, while not agglutinatin other four, together produced some measure of a in for ten of the remaining thirteen strains of bac- ia. These were Culture T, obtained from urine om a patient with pyelonephritis and hemorrhagic stitis, Culture L, obtained from urine of a patient th pyelonephritis of unknown origin, high tempera- e and extreme prostration. Culture B, obtained rom the vagina of an infant, Culture Lm, obtained rom the blood of a prostatic with pyelonephritis, and Culture W, from the blood stream in a case of recurrent pyelonephritis following pregnancy. At the beginning of our work only Cultures T, L and B were used; later the others were added. The vaccine containing these three organisms was administered in three injections of 500, 1,000 and 1,500 millions. The second vaccine containing five strains produced more marked local reaction, and administration was begun at a lower dosage of 150 millions. Inasmuch as some of the cases which were given but three injections, the last three days before operation, developed rise of temperature and pyuria with positive colon cultures *late* n convalescence, we now continue the inoculations oughout convalescence.

n all the foregoing experiments the mass agglu- tion test was used. Various dilutions of serum e mixed in equal parts with 24 degree bouillon res of the organism, and incubated one hour. nfortunately for the rapid progress of these exper- s, prostatics with uninfected urine are not com- in the wards of the Massachusetts General Hos- We have studied eight cases, in two of which tion was refused. Table 2 shows the agglutina- iter for patients' serum and cultures L and T rance and after vaccination.

2.—AGGLUTINATION TITER FOR PATIENTS' SERUM AND CULTURES L AND T

Diagnosis	Entrance Strong		After Vaccination Strong	
	L	T	L	T
Prostate......	1: 10	1: 10	......	1: 500
Prostate......	0	0	......	1: 220
Prostate......	.....	0	......	1: 350
Prostate......	1: 10	1: 10	1: 20	1: 180
Prostate......	?	1: 10	......	1: 1,000
Prostate......	.....	.....	......	1: 2,200
Prostate......	1: 10	1: 60	......	1: 3,000
Prostate......	.....	1: 120	......	1: 500

tients 1 and 4 refused operation. Patient 1 was n one catheterization a day, and when seen two hs later had hazy urine with other bacteria but lon bacilli. He failed to return for further vation.

ents 2, 3, 7 and 8 were vaccinated with but injections, and inoculation was discontinued at ion. The urine remained free from colon bacilli, ere were no symptoms of renal infection until convalescence, when all showed colon bacilli her varieties of bacteria. Patient 3 had definite oms of right pyelonephritis and later right phrosis.

ient 5 showed no rise of temperature during two of preliminary drainage, and passed through ubic operation with a rise to 100 F. for two ollowed by normal temperature throughout con- nce. The urine showed a large bacterial flora colon bacilli at any time during his convales- Five weeks later, ten days after leaving the , he developed a bilateral colon epididymitis and cloudy urine. *B. coli* was obtained in culture from the urine.

Patient 6 entered the hospital with markedly overdistended bladder and beginning uremia. He was vaccinated with increasing doses of mixed vaccine (five strains), beginning at 150 millions, at intervals of four days, until he was receiving 2,500 million at a time, at which dosage he was kept throughout the eleven weeks he remained in the hospital. He was on constant drainage with inlying catheter for eight weeks. Prostatectomy was done. While his urine showed a slight haze and a few pus cells, it never contained colon bacilli; it is now entirely clear, and culture shows no growth of any variety of organism.

We recognize that our work has not been of sufficient scope to justify conclusions as to the value of colon vaccines as a preventive to colon pyelonephritis, yet our experience leads us to believe that it is more than a possibility. While the colon bacillus is not the only organism concerned in renal and bladder infections, it is the permanent infection, and if avoided the patient is usually able to handle the other bacteria.

It is our belief that the immunity conferred by colon vaccine is of short duration, probably not exceeding three or four weeks.

The administration of vaccine in prostatics should be made to extend over the period of convalescence.

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PYELITIS IN CHILDREN *

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The present knowledge on the subject of pyelitis, or pyelocystitis, of infancy and childhood is well reviewed in an article by R. M. Smith[1] of Boston published last year. Since this, the subject has also been dealt with in the papers of Kowitz,[2] Wood[3] and Fischl.[4]

As is well known, by far the commonest type of pyelitis in children is that due to bacilli of the colon-aerogenes group. The clinical picture caused by such infection of the urinary tract is clear cut, recognized generally, and will not be discussed in this place. On two aspects, however, a review of the opinions of writers shows that there exists marked lack of unanimity: the first is in regard to the method of causation of the infection; the second embraces the question of treatment. It is in regard to these points that I wish to call attention.

MODE OF INFECTION

The three methods by which the infecting organisms may reach the renal pelvis are by direct extension upward from the lower urinary passages, by the general blood stream, and by way of the lymphatics. The first method, that of upward extension, has for long held the field as the most probable and the most common. Lately, however, this has been disputed, and several writers, Kowitz and Wood in particular, are of the opinion that the bacteria reach their location by way of lymphatic channels leading from the intestine directly to the kidney, or by the blood stream. The reasons for this change of feeling are, among others, that the ascending route has never yet been clearly proved, and cases are found not infrequently in which no involvement of the lower passages can be demonstrated. The same arguments here as to mode of ingress of the bacteria are in no way confined to children, but apply to adults as well. Kowitz goes so far as to assert that the infection is almost never an ascending one, but a direct result of previous intestinal involvement. He prints a most suggestive incidence curve showing that the majority of his cases occurred during the months from July to November: months during which intestinal diseases are most common in children.

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* From the J. B. Brady Urological Institute, Johns Hopkins Hospital.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Smith, R. M.: Literature of 1913 and 1914 of Infections of the Genito-Urinary Tract in Children, Am. Jour. Dis. Child., April, 1915, p. 338.

[2] Kowitz: Ueber bakterielle Erkrankungen der Harnorgane im Säuglingsalter, Jahrb. f. Kinderh., 1915, **82**, 309; München. med. Wchnschr., June 16, 1914, p. 1341.

[3] Wood: Acute Pyelitis: A Cause of Obscure Fever in Infancy, Arch. Pediat., 1915, **32**, 199.

[4] Fischl: Erfahrungen über Zystitis im Kindesalter, Prag. med. Wchnschr., 1915, **40**, 163.

It would seem that the theory of ascending infection has been losing ground of late, and it is probable that the frequency of this mode of ingress has been exaggerated in the past. There still remains, however, the well known fact of the large preponderance of girls afflicted over boys. Adherents of the ascending infection theory have always explained this by the closer proximity of the female bladder to the exterior, with resulting increased chances of infection of the child's vulva from the anus. On those who deny this mode of origin rests the burden of offering some other plausible explanation for this undoubtedly more frequent infection of girls. None has yet been suggested.

Thomson,[5] who has written two excellent papers on this subject, says on this point:

> The great preponderance of female patients seems . . . to force us to the conclusion that ascending infection by way of the urethra must be a common occurrence; and the excess of girls over boys probably represents the frequency with which urethral infection takes place. It seems very unlikely that the colon bacilli can find their way up the lumen of the male urethra. The greater prevalence of antecedent diarrhea in boys would probably cease to exist if we were able to subtract from the list of girls the primary cases infected per urethram.

He in no way denies the occurrence of cases in which the infection has had origin in the intestines and been carried thence by the blood or lymph.

PROGNOSIS AND DURATION OF THE DISEASE

Of the sixty cases collected by Jeffreys,[6] all but six were due to the colon bacillus. Fifty-three were in females, seven in males. Only twenty-one of the sixty were cured. Nine patients died: six of the urinary trouble, and three of some other disease. Six were unrelieved. Twenty-three were improved, that is, were without symptoms, but still showing pus in the urine. Kowitz gives the details of forty cases, of which fifteen patients died. Langstein,[7] on the other hand, considers that 90 per cent. of the patients recover. It is quite evident, therefore, that the actual mortality is rarely an insignificant one, and in certain localities may run as high as 37 per cent. (Kowitz). But besides this, the morbidity of the disease is considerable, some cases existing for three years or more and ending either in recovery or with some definite nephropathy as a result of the chronic infection. Marsh[7] says that the prognosis of the disease is favorable, "but before pronouncing the patient cured the urine should not only show an absence of organisms and of pus cells, but should also be culturally free." . . . In spite of all treatment many cases become chronic; in these acute exacerbations alternate with long periods of quiescence, but the urine never becomes entirely free from pus cells and organisms."

TREATMENT

Smith says:

> The one form of treatment against which no dissenting voice is raised is the administration of large quantities of fluid. Further than this there is apparently no specific treatment. In many of the acute cases the patients get well untreated.

The English school of pediatricians advocates the so-called "alkaline" form of treatment, in which the urine is kept alkaline by the administration of potassium citrate. Others prefer to make the urine acid by giving sodium benzoate, while still others advise changing frequently the reaction of the urine by the alternate administration of these drugs. Some writers are warm advocates of hexamethylenamin; others advise salol. The use of vaccines has everywhere encountered disappointing results. But the majority opinion seems to favor the use of alkalies.

COMMENT

Such discrepancies in the clinical course of the disease, with their resulting differences of opinion as to its proper treatment, seem to me to be explained by what we know of the protean characteristics of the bacteria of the colon group. The colon bacillus, paracolon bacillus and *Bacillus lactis-aerogenes* form only the general divisions of a group of organisms showing many and often wide variations in their virulence and resistance to destructive agents. It is clear, therefore, that while in one case the administration of potassium citrate may set up conditions inimical to further growth of the infection, and thus bring about a cure, in another case such "alkaline" treatment may be entirely without avail, though here acid-producing drugs may succeed. In every case, therefore, we are logically driven to the careful examination of the biologic characteristics of the individual organism by which the patient is infected.

In this regard the recent work of Clark[8] is not only of great interest, but bids fair to go far in overcoming some of the uncertainties noted above. Together with his co-worker Lubs, he has made a large number of observations on bacteria of the colon-aerogenes family with regard to their power of gas production and also of acid production. The degrees of acidity or of alkalinity compatible with continued cultural life of the organism were measured by determining the hydrogen ion concentration of cultures at frequent periods of their growth. By these means there can be differentiated two groups of organisms, called, according to their ability to produce gas from fermentation of carbohydrates, "high" and "low ratio" cultures. Further investigation has shown that the gas ratios of such cultures correlate perfectly with the differences in the metabolism of different species as shown by their acid production, that is, their hydrogen ion concentration. And so, by using indicators to determine the hydrogen ion concentration as developed by Sörenson,[9] instead of the more complicated electrical method, we have a simple diagnostic test which will accurately determine to which of two groups, at least, the organism under consideration belongs.

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[5] Thomson: On Acute Pyelitis Due to Bacillus Coli as it Occurs in Infancy, Quart. Jour. Med., 1909-1910, **3**, 251; Infection of the Urinary Tract in Children by the Colon Bacillus, Lancet, London, 1913, **2**, 467.

[6] Jeffreys: Infection of the Urinary Tract in Children by Coliform Organisms, Quart. Jour. Med., 1910-1911, **4**, 267.

[7] Quoted by Smith (Footnote 1).

[8] Clark: The "Reaction" of Bacteriologic Culture Media, Jour. Infect. Dis., 1915, **17**, 109. Clark and Lubs: The Differentiation of Bacteria of the Colon-Aerogenes Family by the Use of Indicators, ibid., 1915, **17**, 160. Clark: The Final Hydrogen Ion Concentrations of Cultures of Bacillus Coli, Jour. Biol. Chem., 1915, **22**, 87.

With this knowledge at hand, it should be our endeavor to regulate the reaction of the urine, either by the administration of citrate or benzoate as the case may be, so that it will be as far as possible outside the range of hydrogen ion concentration exhibited by the infecting organism. Cultures from the urine should be grown on the special mediums used by Clark and Lubs[8] from which the range of acid production can be determined. Similar observations should then be made on the urine. Comparison of these two factors will then determine in which direction the reaction of the urine should be adjusted so as to create conditions least favorable to the organism. By this means we shall be doing our utmost on a physicochemical basis to combat the continued existence of the bacteria.

Though sufficient evidence is not yet at hand to lead to a definite decision in the matter, it is my belief that the foregoing form of treatment, based on an accurate knowledge of the biologic characteristics of the infecting organism, will be followed by an increased number of complete cures. It is probably not to be expected, however, that we shall thus be able to control every case; some will still be found in a chronically infected condition, symptomless, but none the less diseased. I would strongly advocate for such chronic cases injection into the kidney pelvis of silver nitrate solution of a strength sufficient to cause a moderately sharp reaction, say from 0.5 to 1 per cent. The marked and often surprisingly quick benefit of such treatment in cases of pyelitis in adults is familiar knowledge to all present day urologists. Heretofore such treatment has not been applied to the child bearing the same type of infection. This is due to the fact that the family physician or pediatrician has felt that such instrumentation is impossible because of the small size of the urethra. In the female, however, with the exception of very young babies, the urethra is dilatable to a size to admit a No. 16 or 18 F. instrument, and cystoscopes of this size carrying a single catheter are easily constructed and handled. It will be found easier in most cases, however, to use direct catheterization through an open cystoscope, with air distention of the bladder. A general anesthetic is necessary, but this need rarely be prolonged over fifteen or twenty minutes at the most.

Though ureteral catheterization is not especially difficult in the female child, it is quite impossible through the normal urethra of the male, and in this respect it is fortunate that the disease incidence noted above shows male children to be in marked minority. It is possible, however, to reach the ureters in the male child by a median perineal section, through which, after dilation of the bladder sphincter, a small cystoscope can be passed. Though cases in which such radical treatment as this is justifiable will naturally be very infrequent, it is quite evident, nevertheless, that such operation with its temporary inconveniences is preferable to a condition of long persisting infection leading to permanently damaged kidneys.

CONCLUSIONS

It is to be noted that pyelitis in children is more often a serious or even fatal malady than has been thought in the past. Though female children are attacked more often than male, this difference is not so great as was held by the earlier writers. The origin of the disease seems quite surely to be from the intestinal tract in a good many cases, but the theory of infection ascending from the lower urinary tract cannot yet be entirely disproved. Medical treatment has been too haphazard heretofore. It should be based on the accurate knowledge gained by estimation of the properties of the specific infecting organism. This can be obtained by determining the hydrogen ion concentration of cultures both of the organism and of the urine. Pediatricians and internists have not yet appreciated the value and possibilities of pelvic injections. Wherever possible this should be urged in those cases in which the urinary tract does not become entirely free from infection within a reasonable time.

My two main objects in calling attention to this subject are to advocate a treatment based on the use of the newer and more accurate methods of bacteriology, and to remind our colleagues the pediatricians that for those few cases which resist this treatment, the urologist can often place at his command a method of local treatment which holds high hopes of success.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CRABTREE AND CABOT, AND QUINBY

Dr. Irvin S. Koll, Chicago: Dr. Crabtree verifies the findings before this section two years ago. There is only one difference, and that is his finding the bacteria in the tissues. I have been unable to isolate from the urine after twenty-four hours any of the colon bacilli after having produced an infection in the kidney, and have also been unable to get on staining any bacteria in the pelvis after twenty-four hours in those cases where I was particularly careful not to traumatize the kidney. As Dr. Crabtree also stated, I have been unable to get any of the colon bacilli in the parenchyma. I have seen a number of cases of pyelitis in pregnant women. I prefer the title "pyelitis during pregnancy," rather than "pyelitis of pregnancy." An intelligent patient who knows something of the diseases of her childhood will, in 90 per cent. of cases, tell you that she had some kidney trouble, probably a cystopyelitis, in early childhood. What does this mean? It means that all of these years she has had bacteria in the urine without any symptomatic manifestation. Possibly a microscopic examination of the urine would fail to show any pus cells, but a bacteriologic examination of the urine will show bacteria. This leads up to the point I attempted to bring out several years ago in my study of the colon infections of the kidney, namely, that a patient with pyelitis, or pyelonephritis, as I prefer to call it, should never be pronounced cured until repeated cultures taken from the urine through the ureteral catheter fail to show bacteria. As to specific therapy, I wonder if any one has made sections of a kidney in an animal following the injection of 0.5 or 1 per cent. silver nitrate to see just exactly what it does. I have not. But you know what the effect of silver nitrate is on any mucous membrane; it is distinctly corrosive, and it forms a sort of membrane over the surface. We know that the bacteria are beneath the surface, and while there is a sharp reaction, is it a beneficial one? I wonder if we do not get a great deal of destruction? I still am using the solution of aluminum acetate with the same good results that I got three or four years ago; 0.5 to 2 per cent. aluminum acetate injected into the pelvis of the kidney until you fail to get the bacteria in the urine will give good results which will be permanent.

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9. Sorenson: Compt. rend. trav. de Lab. Carlsberg, 1909, 8, cited by Clark and Lubs (Footnote 8).

Dr. Henry F. Helmholz, Chicago: I was very much interested in what Dr. Quinby had to say about the pyelitis of infancy, and have been interested in the subject from very nearly the same point of view that he has, namely, determining the acidity or alkalinity in which the colon bacillus will grow. The point he made of titrating or determining the hydrogen concentration of the culture medium after the organism is grown is not what we are after, but to get a medium in which the organism will not grow. In a series of about twenty cases we have grown the organism isolated in broth of varying degrees of alkalinity and acidity, and in nineteen cases the range was from 2 per cent. bacteriologic acidity to 2 per cent. bacteriologic alkalinity. Only one of these organisms grew beyond that range.

Dr. William F. Braasch, Rochester, Minn.: In regard to the prognosis of these cases of pyelitis of infancy, my observation has been that rarely is it true that a case of chronic pyelonephritis as seen in the adult gives a history of having had any infection or ordinary trouble in infancy or childhood. I realize the fact that cases of pyelitis may occur in infancy without urinary symptoms. It is not the rule, however. So there must be a distinct difference between the pyelitis of infancy and that of the adult, because the adult rarely gets well. By treatment we can improve the condition, but it is exceptional for a patient to recover entirely, at least on cultural examination.

Dr. Granville MacGowan, Los Angeles: I cannot agree entirely with Dr. Braasch. There are patients with pyelonephritis who get well if properly and persistently treated. I have used Dr. Koll's method but I do not think as favorably of it as I do of the use of silver nitrate, as recommended by Dr. Geraghty. Many get so well that cultures made from the urine do not show any colon bacilli, and I have seen many women with pyelitis during pregnancy giving an intermittent history of pyelitis or pyelonephritis from childhood.

Dr. Edwin Beer, New York: I would like to ask Dr. Crabtree on what he bases his conclusion that after inoculation with these colon vaccines he is really getting the benefit that he seems to think he is getting, because as I reflect on my own experience I do not find that I am troubled with repeated attacks of pyelonephritis, either after the first stage of the operation or after the prostatectomy, and it is just possible that in the Boston clinic they are getting different results now which may not be attributable to the preliminary vaccine treatment. I believe that if everybody will talk, we will probably find that there are more people who fail to see these postoperative pyelonephritides than Dr. Crabtree's report suggests. The greatest difficulty in this field to me has always been the diagnosis. In an acute case of pyelonephritis—or pyelitis, as the pediatrists call it—it is very difficult to decide as to the extent of the pathologic lesion. Is it a pyelitis per se, or is the kidney involved also? Is our patient suffering from pus foci in the parenchyma? In the acute cases I believe it is almost impossible to differentiate immediately. You will hear that the functional tests will show a marked diminution in excretion if the parenchyma is involved, but I am not sure that that is absolutely reliable. Later in the subacute or chronic stages the recognition of parenchyma involvement is simpler. I suppose one has followed the method I published eight years ago. I would like to add a note to that publication in which I called attention to the fact that methylene blue is stored in the minute parenchyma abscess and is later discharged bound to the pus, as these abscesses discharge into the pelvis of the kidney. During the last four or five years I have encountered the same phenomenon with indigocarmin.

Dr. E. G. Crabtree, Boston: In carefully followed functional tests with phenolsulphonephthalein we have noted that following decompression of kidneys which have been the seat of back pressure there is uniformly a fall in output which we attribute to congestion. It is of only a day to three or four days' duration. If the case does not become infected, the phenolsulphonephthalein output continues to rise until at the end of a week or ten days it has reached a safe, stable, operable level. However, the intervention of a pyelonephritis at any stage of the game suddenly drops the functional test down, in some cases with a previously 45 to 50 per cent. output to less than 5 per cent. The cases so infected show, as I have tried to indicate in my paper, a definite increase in agglutinating power of their serum for their colon bacillus. The patients we have vaccinated previous to operation have shown this same increased agglutinating power. They have, as a rule, run without postoperative temperature elevation, save for 99 to 100 degrees for the first two days, which is unusual following suprapubic prostatectomy. The urine in these cases has uniformly shown infection after operation with bacteria other than the colon bacillus. In some of our cases, in which we did not continue the use of vaccine throughout convalescence, the patient developed pyelonephritis or epididymitis late in convalescence, which leads us to believe that the protection afforded by colon vaccine is of short duration, three to four weeks at most.

Dr. William C. Quinby, Baltimore: In regard to the question asked by Dr. Koll as to whether any experimental observations have been made on the injection of silver nitrate, none have been made by me because I did not think it necessary. Silver nitrate cures the patients, and that is the main point in the matter. From a histologic point of view we know that silver nitrate does cause desquamation which has been preceded by round cell infiltration and vascular congestion which the pathologist would probably call inflammation. It is during this process of reaction that the bacteria have been shown to disappear. In regard to the remarks of Dr. Helmholz, probably I did not make myself clear. I was very much interested in his remarks because they bring up the thing that I am asking you to avoid; namely not to speak of "acidity" or "alkalinity" in percentages, or in some term that you must qualify, but to use a term by which the physician or scientist will know what you are talking about. In other words "2 per cent. alkalinity" or "2 per cent. acidity" does not mean anything definite unless the details of the method by which such was determined are first explained. If you state this degree of acidity or alkalinity in terms of hydrogen ions it is analogous to saying that a patient has a temperature of 101 degrees; no qualification is necessary, and every one knows what is meant. We ought to stop this loose writing and talking. We see many statements in the literature that a patient's urine was "very acid." That does not mean anything. Let us state it as a perfectly definite degree of concentration of hydrogen ions, something which we could not do ten years ago. I was very much interested in the point brought out by Dr. Beer about the methylene blue being retained and subsequently staining. I have not had his experience with methylene blue, but I have had experience with indigocarmin.

A NEW METHOD OF ACIDOSIS THERAPY

BLOOD TRANSFUSION FROM AN ALKALINIZED DONOR, WITH REPORT OF CASE *

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It is generally believed that the alkalinity of the blood of a normal person is fairly constant and unalterable.[1] Our purpose is to show that the alkalinity of the blood of a normal person can be greatly increased by a very simple procedure, and furthermore, to point out the feasibility of such alkalinization of the blood of a normal donor to enhance its therapeutic value in blood transfusion for the treatment of acidosis.

Briefly stated, when the alkalinity of the blood is diminished through excessive acid products formed during deranged intermediary metabolism, the condition is called acidosis. The acid substances are volatile fatty acids, diacetic acid, beta-oxybutyric acid and, in all probability, occasionally lactic acid. Under normal conditions these acids are completely oxidized into carbon dioxid and water. An acid reaction of the blood is known to be incompatible with life. Intermediary metabolism takes place only in a neutral or slightly alkaline medium. There is a great effort, consequently, on the part of the human economy to keep the reaction of the blood and tissues within the normal limits. The symptoms arising in acidosis are due entirely to the withdrawal of alkali from the blood and the tissues.

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* From the Department of Pathology, Bellevue and Allied Hospitals.

[1] A. W. Sellards (Bull. Johns Hopkins Hosp., 1912, **23**, 289) has shown that the tolerance to alkali is higher in acidosis than in normal individuals as measured by the urine. No blood examination or blood studies were made.

During catabolism the sulphur and phosphorus of the protein molecule are oxidized to sulphuric and phosphoric acids, respectively. These would acidify the blood at once, were it not for the sodium, potassium, calcium and magnesium taken in with the food, in the form of salts or organic acids, in fruits and vegetables; these salts of organic acids are oxidized to carbonates of the foregoing metals, plus water, and serve for the neutralization of the acids mentioned above, at the same time liberating carbon dioxid which is excreted by way of the lungs. When the fixed alkalies are insufficient to neutralize the acids produced, then the organism makes use of a beautiful mechanism for neutralizing the excess, as follows: Amino acids passing through the liver and muscles are deamidized, that is, the amino group (NH_2) is broken off and changed to ammonia; further, this ammonia, together with water and carbon dioxid, is converted into urea, and this is excreted by way of the kidney. If, however, the blood stream brings to the liver unneutralized sulphuric acid and phosphoric acid molecules, owing to the lack of fixed alkali, then the ammonia mentioned above neutralizes the acids, and is excreted as ammonia salts. Thus the more acids produced in the organism, the more ammonia salts and the less urea are found in the urine, and vice versa.[2] An excess ammonia in urine, therefore, does not mean an increased acidity of blood, but simply an excessive neutralization by ammonia. If, however, abnormally large amounts of acids are produced, as in pathologic conditions, in which the inorganic are augmented by the organic acids (diacetic, oxybutyric), then the limit of ammonia neutralization is exceeded, and beyond this the acids partly withdraw fixed alkalies from the tissues, partly excreted in urine as acids, and partly are left unneutralized and accumulate in the blood, producing what is known as acidosis. The most convenient method of detecting this condition is the method of Van Slyke;[3] this consists in determining the alkaline reserve of blood plasma, by means of the amount of carbon dioxid absorbed at alveolar tension.

Our problem thus being analyzed in a general way, the important question which confronts the physician and the patient is, What therapy can be offered for the relief of the condition of acidosis? The chief alkalies for the neutralization of the acid bodies are sodium, potassium and calcium, sodium being the most important. Sodium bicarbonate is the drug of choice. It is given by mouth, by rectum and, in severe conditions, intravenously. It is the rational method of treatment. But in some cases it does not work. The sodium bicarbonate can merely neutralize the acid bodies present, but does not prevent their continued development. When given by mouth, it is often vomited, and if there is persistent vomiting, as is often the case, it cannot be so administered advantageously. Given by rectum, it is irritating after prolonged use, and a catarrhal condition may follow, with the development of a complete mucous cast of the lower bowel, absorption thus being prevented. When given by hypodermoclysis, it is painful, and this procedure is often followed by subcutaneous hemorrhage. The intravenous method, while rapid, is not free of danger. Some of the sodium bicarbonate is converted into carbonate in solution. The presence of an excess of sodium carbonate may jell the blood, even though the administration be very slow.

BLOOD TRANSFUSION

The amount of alkali in the circulation being directly proportionate to the volume of blood plasma, it follows that any increase of the plasma should be followed by an increase of the total alkaline capacity of the blood. Hence in severe cases of acidosis in which the ordinary measures have failed, blood transfusion deserves a respectful consideration. In blood transfusion, not only the plasma volume is increased, but also, necessarily, the oxygen-carrying capacity and oxidizing ferments of the blood are augmented.

Heretofore it has been considered impossible to increase the alkalinity of the blood for the reason that the alkali is excreted as rapidly as absorbed when introduced by mouth. Nevertheless we have attempted in our experiment to prove the possibility by the administration of large and frequent doses of alkali to increase the alkalinity of the blood of the donor for the blood transfusion of patients suffering from acidosis. The object of the experiment, therefore, was to test the feasibility of the introduction of alkali through the blood of the donor in its most available form with simultaneous increase of the oxygen-carrying capacity. The latter factor, as is well known, facilitates the oxidation of the fatty acids, and thus would tend to prevent the appearance of acid substances in the blood of the patient. The demonstration of the possibility of actually performing this object on man, as we have outlined above, is the aim of this paper. We consider that we have proved that the alkalinity of the blood of a normal person can be increased.

We purpose to review briefly the experiments made on donors in a study of the absorption, retention and excretion of sodium bicarbonate.

EXPERIMENTS ON DONORS

Alkalinizing of Subjects.—This work was done on three healthy young men, with negative Wassermann tests: (1) J. B., aged 28, weight 150 pounds; (2) F. K., aged 32, weight 158 pounds, and (3) W. B., aged 27, weight 180 pounds. In Case 1, 10 gm. of sodium bicarbonate was given by mouth every two hours for eight doses. In Cases 2 and 3, 20 gm. of sodium bicarbonate were given every two hours for eight doses.

Blood Taking.—About 18 c.c. of blood were removed from the median brachial vein, at five different times, at intervals as shown in Table 1. About 5 c.c. of this were used for the hydrogen ion determination, 3 c.c. for the carbon dioxid absorbability, and 10 c.c. for the total amount of bases present in the blood.

Methods of Analysis.—H Ion Content of Whole Blood: The blood was allowed to run from the needle directly into the V-shaped gas electrode containing the hydrogen gas, 0.85 per cent. sodium chlorid solution, plus a few crystals of herudin, as proposed by Michaelis.[4] After thorough mixing by inverting cell about thirty times, the cell was connected up with standard calomel electrode, Leeds and Northrup potentiometer, very sensitive reflecting galvanometer, etc., and values read every two minutes. In every case equilibrium was obtained within ten minutes. The values obtained are recorded in Table 1.

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[2] Sherman and Gettler (Jour. Biol. Chem., 1912, **11**, 323) have shown that about one third of the added acids come to urine as salts of fixed alkali, about one third as ammonia salts, and that about one third are excreted as free acids.

[3] Van Slyke: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 7.

Carbon Dioxid Absorbability of Blood Plasma.—About 3 c.c. of blood were run into a 10 c.c. Erlenmeyer flask containing a very small pinch of powdered potassium oxalate. This was then centrifuged to get a clear plasma, and used for determining how much carbon dioxid 1 c.c. of it will take up under alveolar tension according to the method of Van Slyke.[3] The more carbon dioxid a plasma takes up, the more alkaline it is. The values obtained are recorded in Table 1.

Bases Present in the Whole Blood.—About 10 c.c. of blood were allowed to run into a tared platinum dish, covered at once and weighed. This weight gives the amount of blood taken for analysis. It was placed in a drying oven over night and was then ashed, care being taken to avoid more than a dull red heat of the platinum dish in order to prevent volatilization of alkali chlorids. When the ashing was complete, it was cooled, and leached five times with 10 c.c. portions of hot water, containing 2 drops of hydrochloric acid; it was filtered quantitatively into a small beaker; this then contained all the calcium, magnesium, sodium, potassium and iron as chlorids. Next 2 c.c. of 10 per cent. ammonium chlorid were added, made slightly alkaline with ammonium hydroxid, and allowed to stand one-half hour; this precipitated out the iron, which was filtered off. The filtrate was evaporated to dryness in a platinum dish, carefully ignited to dull redness to drive off all ammonium salts, cooled, redissolved, filtered and again evaporated and ignited at low red heat. This was then cooled in a desiccator and weighed, giving the actual amount of bases present as chlorids in the amount of blood. If an increase of bases is obtained, it must be due either directly or indirectly to sodium increase.

TABLE 1.—EXPERIMENTS IN ALKALINIZATION OF BLOOD

Time of Blood Taking	H ion p_H	Alkaline Reserve, Volume per Cent.	Mg. Bases Present as Chlorids in 100 C.c. Blood
Case 1: *			
Before first dose; 9 a. m.	7.57	63	813
2 hrs. after 4th dose; 4 p. m.	7.62	67	859
2 hrs. after 5th dose; 6 p. m., or 4 hrs. after 4th dose............	7.56	61	847
Next day, 24 hrs. after 1st dose, or 8 hrs. after last dose........	7.57	60	818
Case 2: †			
Before first dose..................	7.56	54	832
20 min. after 4th dose............	7.72	89	853
40 min. after 4th dose............	7.68	91	910
70 min. after 4th dose............	7.62	85	846
24 hrs. after first dose, or 10 hrs. after last dose..................	7.60	77	795
Case 3: ‡			
Before first dose, 9 a. m.	7.59	59	867
30 min. after 4th dose............	7.68	77	914
50 min. after 4th dose............	7.66	72	883
70 min. after 4th dose............	7.65	69	874
24 hrs. after first dose, or 10 hrs. after last dose..................	7.62	67	851

* Dosage of sodium bicarbonate, 10 gm. every 2 hrs. for 8 doses, beginning 9 a. m.

† Dosage of sodium bicarbonate, 20 gm. every 2 hrs. for 8 doses, beginning 9 a. m. Urine: NH_3 output 24 hrs. period before alkali administration, 0.709 gm. NH_3 output during a period of 24 hrs. after 1st dose of alkali, 0.092 gm.

‡ Dosage of sodium bicarbonate, 20 gm. every 2 hrs. for 8 doses, beginning 9 a. m. Urine: NH_3 output 24 hrs. period before alkali administration, 0.709 gm. NH_3 output during a period of 24 hrs. after 1st dose dose of alkali, 0.063 gm.

COMMENT

Case 1 shows very little change of the blood alkalinity by any of the three methods of estimation. There was some slight increase of alkalinity, uniform in all three methods, but not sufficient to warrant the assertion that there was an increase of blood alkalinity by alkaline therapy. It was further seen on examination of the urine that the alkali was rapidly excreted, accompanied by a great fall in the ammonia output. We suspected that the alkali may have been present in the blood in large amounts, but that the excretion was so rapid that the increase could not have been demonstrated unless an analysis of the blood had been made soon after administration, and that therefore the increase of alkalinity failed of detection. Experiments 2 and 3 were therefore planned. In Case 2, the blood was taken for analysis much sooner after the administration of the alkali, namely, twenty minutes and forty minutes after ingestion of the alkali, instead of two hours after administration, as happened in Case 1. Furthermore, the doses given were doubled. To our great satisfaction, we discovered that forty minutes after the fourth dose was taken, an increase of the alkali reserve to 37 volume per cent. was obtained.

A third experiment, Case 3, was then planned to see whether this was the maximum alkalinity or whether this maximum lay between the twenty to forty minute interval, or between the forty to seventy minute interval. Case 3 shows that such a maximum is obtained between thirty and forty minutes after administration. Beyond forty minutes it decreases rapidly. In this case the high degree of alkalinity of Case 2 was not attained, undoubtedly owing to the fact that the subject developed a watery diarrhea after the second dose, whereas Case 2 did so only after the fifth dose. The diarrhea was that of saline purgation, and hence less sodium bicarbonate was absorbed.

Summary.—1. The reaction of the blood before, during and after alkali ingestion was carefully determined by three independent methods. All tests (H ion content, alkaline reserve by carbon dioxid determination, and bases actually present) showed that the alkalinity of the blood may be appreciably raised by our method.

2. The highest increase in alkali reserve was 37 volume per cent., obtained in Case 2, or an actual increase of alkalinity of the blood of 74 per cent.

3. This maximum blood alkalinity is obtained between twenty and forty minutes after administration of alkali, reaching the greatest height in about thirty minutes. It quickly subsides thereafter.

4. In acidosis therapy with sodium bicarbonate, the alkali should be given in small doses at regular and very short intervals, rather than in large doses once or twice daily.

REPORT OF CASE

Clinical report of this case of acidosis was furnished by Dr. A. H. Ely,[5] who kindly referred the case to one of us.

History.—Mrs. M. D., aged 24, one of five children who have attained maturity, whose grandfather and father suffered from marked diabetes, was unusually intellectual, and of a highly nervous temperament. She married, May, 1914, and became pregnant following the next menstruation. Almost immediately after conception she began to be nauseated, and vomited so frequently that the case was diagnosed as one of emesis gravidarum. She was advised by a noted obstetrician in London to have pregnancy terminated. This was refused, and after being under constant medical care for four months, she returned to America and came under Dr. Ely's observavation. The whole period of gestation was marked by excessive digestive disturbances, and while at no time were there definite nephritic symptoms, a varying amount of acetone and diacetic acid was found in the urine. No blood analyses were made.

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[4] Michaelis, L.: Die Wasserstoffionenkonzentration, 1914.

[5] Ely, A. H., and Lindeman, Edward: Am. Jour. Obst., 1916, 74, 42.

In March, 1915, she was delivered of a normal child approximately at term, with normal labor and with a very small amount of chloroform. Great care was exercised in the artificial feeding of the child, yet symptoms of acidosis were present in the infant

The patient began her second pregnancy, Sept. 1, 1915, five months after the birth of her child. The first month no untoward symptoms developed, and the urine was normal At the beginning of the second month, however, acetone and diacetic acid were noted in the urine, and the patient continued to vomit. Her weight at this time was 122 pounds. During the course of her pregnancy and the following illness she lost 24 pounds. During October, 1915, attention was directed to the treatment of acidosis by means of large doses of alkalies by mouth and by colon irrigations, but without effect. As the pregnancy advanced, the vomiting became more and more excessive, and none of the usual means employed in cases of emesis gravidarum gave any beneficial results. It is to be noted that thorough examinations failed to find any abnormal condition in the pelvis, and that the urine contained no albumin or other indications of any lesion of the kidneys. The patient presented on the day of transfusion a picture of emaciation and profound toxemia, yet had practically a normal pulse and only slight fever or subnormal temperature. November 12, the thirteenth week of pregnancy, after consultation with Dr. E. B Cragin, the uterus was emptied. The condition of the acidosis, however, was not ameliorated, in fact, it grew worse gradually until the situation assumed a rather grave aspect. The patient was placed on a fat-free diet; but persistence of vomiting made it impossible for her to obtain more than little nourishment.

TABLE 2—URINARY FINDINGS IN THE CASE REPORTED

Date	Reaction	Specific Gravity	Albumin	Sugar	Acetone	Diacetic Acid	Indican	Urea, %	Microscopic			
10/ 5/15	Faintly acid	1 009	Absent	Absent	Absent	Absent	Trace	0 6	Many epithelial cells; few white blood cells			
10/13/15	Neutral	1 008	Absent	Absent	Absent	Absent	Absent	0 6	Few epithelial cells and white blood cells; calcium oxalate			
10/19/15	Consid acid	1 020	Faint trace	Absent	Faint reaction	Faint reaction	Absent	0 9	Many epithelial cells and white blood cells			
10/22/15	Faintly acid	1 015	Absent	Absent	Faint reaction	Absent	Absent	1 2	Many epithelial cells and white blood cells			
10/25/15	Consid acid	1 030	Faint trace	Absent	Marked reaction	Marked reaction	Absent	2.5	Considerable amount of phosphates and urates			
10/29/15	Faintly acid	1 026	Faint trace	Absent	Faint reaction	Faint reaction	Absent	2 2				
11/ 5/15	Alkaline	1 020	Absent	Absent	Marked reaction	Marked reaction	Absent	1 7				
11/ 8/15	Alkaline	1 020	Absent	Absent	Marked reaction	Marked reaction	Marked	1 4	Abundance of epithelial cells			
									NH₃ %	NaCl%	Micro	Blood
11/22/15	Acid +++	1 020	+	—	+++	+++	—	1 2	0 072	..	Pus +++	—
11/23/15	Acid +	1 020	+	—	+++	+++	—	1 3		...	—	+++
11/24/15*	Acid +	1 010	+	—	+++	+++	—	0 5	0 053	...	—	
11/29/15†	Acid +	1 009	+	—	+++	+++	—	0 21	0 057	...	—	
11/29/15 5 p m	Alkaline +	1 030	+	—	+++	+++	—	0 34	0 0094	....	—	
11/30/15 10 a m	Alk. +++	1 012	+	—	+++	+++	—	1 0	0 25	....	—	
12/ 2/15*	Alk. +++	1 015	—	—	—	—	—	0 9				
12/ 2/15†	Alk +++	1 015	—	—	—	—	—	1 2				
12/ 6/15	Acid +	1 010	—	—	—	—	—	1 0				
12/10/15	Acid +	1 024	—	—	—	—	—	2 8	0 016	0 25		
Normal average					..	.	.	2 0	0 07			

* Before transfusion. † After transfusion.

Blood analyses were now made, and for the relief of the condition we decided to employ the syringe method of blood transfusion.[6] The blood of the donor, the husband, was chosen after appropriate tests. For sixteen hours before the transfusion, the donor was given 20 gm. of sodium bicarbonate every two hours. November 26, the transfusion was accomplished with no discomfort to the donor, and never had Dr. Ely seen such a miracle as was presented immediately in the condition of the patient. The woman, who a few minutes before had been lethargic, with gray ashen facies and waxy fingers, became interested in everything about her, the pulse changed its character completely, and with moist tongue and pink lips she asked intelligent questions.

The transfusion was done at 12:30 p. m. Four hundred c.c. of blood were removed from the patient, and 1,100 c.c. were then transfused from the husband (donor) to the patient, together with 300 c c. of Locke's modification of Ringer's solution. The patient was fed every two hours after transfusion, and soda solution was introduced into the rectum every four hours. The patient vomited only three times in the next twenty-four hours, and after that was able to take the prescribed diet. December 2, another transfusion was done with the same donor, in the same manner as before, except that 760 c c. were transfused and a relatively small amount of Locke's solution. No blood was removed at this time.

Blood tests made at frequent intervals have shown the blood free from acidosis and, except for a mild secondary anemia, it is normal. Convalescence has been progressive, and the patient is now able to engage in most of her usual activities.

COMMENT

In considering the figures in Table 3, the story is even more striking than the statements of the clinical course. The blood urea before transfusion ran low. A low blood urea is characteristic of a patient on a starvation diet. Before transfusion there were persistent vomiting and inability to take protein foodstuffs. After transfusion, vomiting ceased, and concomitantly there was increased tolerance and ingestion of protein foodstuffs. This was followed by an increase in blood urea. December 20, a month after transfusion, the blood urea had increased to 32 mg. per hundred c.c. volume, which is three times the amount present during the starvation period. The patient was considerably emaciated because of her starvation period. She was put on a high protein diet and began to gain weight rapidly; hence the high nitrogen figures of December 20.

The uric acid figures fall within the normal limits.

The creatinin may also be *regarded within normal* limits.

The blood ammonia, unfortunately, was not determined before transfusion, but we have reason to suppose that it was very high. Three days after transfusion it was practically twice as high as the upper limit of normal. On this day the urine for the first time was alkaline, although the acetone bodies were still present. The high ammonia in the presence of low protein diet must be explained in one or two ways or both:

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[6] Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am Jour. Dis Child, July, 1913, p 28

1. The ammonia from endogenous metabolism is drawn on to neutralize acid before it can be built up into urea by the liver.
2. The liver may be so diseased that it is unable to build up into urea the amount of ammonia that is offered to it.
3. Both factors may prevail.

December 20, though the patient was on a high nitrogenous diet, the blood ammonia was below normal, the actual quantity approximating one-half the lower normal limit.

The most important and perhaps the most interesting figures in the table are those of the carbon dioxid percentage content of the plasma.

The available alkali of the blood is in the form of sodium bicarbonate, and is present practically in its entirety in the plasma. The alkalinity of the blood was determined by the estimation of the amount of carbon dioxid (gaseous) that can be liberated from the plasma (Van Slyke).

TABLE 3.—BLOOD FINDINGS IN THE CASE REPORTED

Date	Milligrams per Hundred C.c. of Blood						
	Urea	Uric Acid	Creatinin	NH_3	NaCl, %	Sugar	Alkaline Reserve Vol. per Cent.
Before transfusion from alkalinized donor							
11/22	9.00	.....	.....	.....	.....	50	43
11/26	9.00	1.3	0.3	.....	0.66	77	
After transfusion							
11/29	10.4	0.82	0.3	1.50	0.46	80	82
12/20	32.0	1.4	0.8	0.2	0.587	33	76
Normal av. ..	12-16	1-3	0.1-0.4	0.4-0.9	0.6	60-110	53-83

It has been found that where the carbon dioxid content of the plasma is below 53 per cent., the patient develops a state of acidosis. Above 53 per cent. no state of acidosis prevails.

Before transfusion, in the case under discussion, the carbon dioxid plasma content was 43 per cent.; after transfusion the plasma content of carbon dioxid was 82 per cent. This marked increase cannot be regarded in the light of the simple law of averages after transfusion, because the normal average is between 53 and 77 per cent. One must conclude that something more than an averaging of the alkalinity of two mixtures had taken place: that not only had alkali been administered in the most available form, but also by transfusion the acid bodies actually formed and responsible for the disease had been diminished at their source.

CONCLUSIONS

1. The generally accepted routine of frequent urinary analyses during the whole period of pregnancy in private cases should be supplemented by analyses of the blood, since it is a more accurate test in the determination of the condition of the patient.
2. Not only should the blood of the donor and the recipient be compatible, but also, as illustrated by this case of acidosis, in which for the first time so far as known the donor has been prealkalinized, the blood of the donor should be alkalinized by large doses of sodium bicarbonate before transfusion.
3. By the method of syringe transfusion we have a comparatively simple and safe means of treatment which produces results not found with other known methods.
4. The timely use of this treatment may obviate the necessity of emptying the uterus in cases of acute and severe acidosis complicating pregnancy, and may be employed in other severe conditions of acidosis not complicated by pregnancy.
5. In alkalinizing the blood of a donor for blood transfusion in a given case, the blood should be transfused about one-half hour after administration of the last dose.

HEMATURIA

A CLINICAL STUDY *

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This clinical report is based on a study of 238 consecutive cases of blood in the urine. Only those cases in which the presence of blood was apparent to the naked eye are included. Cases in which the hematuria was due to gonorrheal urethritis, the passage of sounds or injury to the urethra are not included. Essential hematuria, idiopathic renal hemorrhage, etc., will not be considered, as they have been dealt with in other publications.[1]

Hematuria, with but very few exceptions, means the presence of organic disease in the urinary tract. The importance of hematuria as a symptom cannot be too strongly emphasized, and it is most unfortunate that its importance is so often disregarded and belittled by both patient and physician. Very often the hematuria is painless, and, not infrequently, symptomless, so that an accurate diagnosis from the presence of this symptom alone is not possible. Instead of making an accurate diagnosis, vague and indefinite terms are used in describing the hematuria, and various styptic drugs are administered, after which both patient and physician *wait* for the bleeding to stop. This is but another of the many forms of medical procrastination, and it must be discouraged. Rather than treat hematuria symptomatically, it is by far a much wiser procedure to establish the origin, and to determine the cause of it, in each instance, as far as possible.

The importance of making an early diagnosis in each and every case is particularly significant, if we bear in mind the large number of cases due to new growths and tuberculosis, and it is especially in these groups of cases that an early diagnosis must be made in order to obtain the best end-results. Many of the patients in this series gave a history of hematuria of several years' duration before they were subjected to a thorough and complete examination.

With the modern methods of diagnosis, the origin and cause of urinary hemorrhage can be ascertained in a very large majority of cases. It may not always be possible to make a definite diagnosis by a single, or even several, cystoscopic examinations, or by employing *one* of the various methods of diagnosis; in a certain number of cases it may be necessary to resort to all methods of diagnosis before the desired information is obtained.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Kretschmer, H. L.: Ztschr. f. Urol., 1907, 1, 490; Surg., Gynec., and Obst., January, 1913, p. 34.

The value of clinical observation, extending over long periods of time, was illustrated in several cases of profuse, symptomless hematuria in which no apparent cause was demonstrated; subsequent observations proved the presence of nephritis. Profuse, painless hematuria may be the initial symptom of nephritis. In another group of cases in which at first no diagnosis, or only a tentative one, was made, further observation demonstrated the presence of renal tuberculosis. Because of the occasional difficulty in demonstrating tubercle bacilli in the sediment of urine containing a large amount of blood, we now make it a routine in all obscure cases of hematuria, and in all cases in which tuberculosis is suspected, to inject guinea-pigs. In this way we were able to make an early diagnosis of renal tuberculosis in cases that might have gone unrecognized. Because of the possibility of tuberculosis being masked by a colon bacillus infection, this has particular significance, for in several cases in which a provisional diagnosis of hemorrhage due to colon bacillus infection was made, the guinea-pigs showed tuberculosis.

For purposes of study the cases were divided into the following three groups:

1. Cases in which a positive diagnosis was made.
2. Cases in which the origin of the bleeding was determined.
3. Cases in which neither cause nor origin was determined.

CASES IN WHICH AN ACCURATE DIAGNOSIS WAS MADE

An accurate diagnosis was made in 197 cases. The various lesions found are given in the accompanying tabulations:

LESIONS OF THE KIDNEY

	No. of Cases
Renal tuberculosis	23
Nephritis	12
Renal calculus	8
Hypernephroma	8
Colon bacillus infection	8
Renal tumor	2
Polycystic disease	2
Trauma	2
Hydronephrosis	2
Renal carcinoma	2
Pyonephrosis	1
Movable kidney	1
Pregnancy	1
Doubtful stone	1
Oxaluria	1
Total	74

LESIONS OF THE BLADDER

	No. of Cases
Carcinoma	32
Papilloma	26
Calculus	14
Bladder tuberculosis	10
Diverticulas	2
Angioma	1
Polypi	1
Total	86

LESIONS OF THE PROSTATE

	No. of Cases
Carcinoma	12
Hypertrophy	13
Total	25

LESIONS OF THE URETER

	No. of Cases
Calculus	10

LESIONS OF THE FEMALE URETHRA

	No. of Cases
Prolapse	1
Tumor	1
Total	2

An analysis of this series of 197 cases showed that tumor formation was the most frequent single cause of bleeding. Tumors of the bladder were responsible for bleeding sixty times, or in about 30 per cent. There were twenty-five lesions of the prostate, of which twelve were carcinomatous and thirteen were benign hypertrophy. There was one urethral tumor (female).

Tuberculosis was second in point of frequency, there being thirty-three cases of renal and vesical tuberculosis. The cases of vesical tuberculosis include those in which nephrectomy had been performed and those in which the tuberculosis was secondary to lesions in the genital tract.

New formations of the kidney are third in point of frequency, being less frequently the cause of bleeding than tuberculosis or nephritis. Of the seventy-four renal lesions, tumor was found twelve times.

If we include, with the new growths, prostatic enlargement and carcinoma, there were ninety-nine cases in which the hematuria was due to new growths, or approximately 50 per cent. of the positive cases in this series.

Calculi of the urinary tract were the next most frequent lesion found. A total of thirty-two cases were divided as follows: kidney, eight; ureter, ten, and bladder, fourteen.

The great importance of subjecting this group of cases to a careful and thorough examination in order to obtain a cure is apparent at once. This fact is one that is not appreciated by the general practitioner, who usually sees and treats these cases first. In one case the patient had his initial hematuria twenty years before a cystoscopic examination was made, and in another case fifteen years had elapsed. Not infrequently the patients were told by their physicians that the hematuria was of no significance, and were given internal treatment, and that there was no importance to be attached to this symptom. In several of these cases hopeless carcinomas were found.

CASES IN WHICH THE ORIGIN WAS DETERMINED, BUT NOT THE CAUSE

Renal lesions, as is well known, may bleed intermittently. If the patient is examined during the free interval, it may be impossible to establish the origin of the hematuria by cystoscopic examination, unless this shows changes in or around one ureteral orifice.

In fourteen cases the origin was determined, but the cause was not definitely established. An analysis of these cases shows that there were three females and eleven males. The origin of the bleeding was determined either by ureteral catheterization or by plain cystoscopic examination, which revealed bloody urine being emitted from one ureteral orifice.

It is well to bear in mind the possibility of the existence of a bilateral lesion in some of these obscure cases. That only one side is bleeding at the time of cystoscopic examination does not exclude such a possibility. In several instances in which more than one cystoscopic examination was made, first one side and then the opposite were found to be the source of the bleeding. Three of these fourteen patients were operated on. They were operated on elsewhere, and no tissue was excised for pathologic examination. This should be a routine procedure in each case subjected to operation, in which no gross pathologic condition is found at the time of operation. The remaining, patients were subjected to Roentgen-ray examination, bacteriologic examinations of the urine, etc. In three of the cases pyelography was carried out without giving any additional information. One of these patients, a woman, had a blood pressure of 225 mm., and it may be possible that the hematuria in this case was associated with the high blood pressure. In two cases the bleeding was bilateral.

Several of these cases were seen before pyelography and cultures of the urine were carried out as a routine, and it is quite possible that these may have been of value in clearing up the cause of the bleeding in at least some of the cases in this group.

Four of the cases were treated by intrapelvic injections of epinephrin. In three the bleeding ceased, and in one the epinephrin had no effect.

CASES IN WHICH THE ORIGIN WAS NOT DETERMINED

This must naturally form an interesting and important group of cases, for in them neither a diagnosis was made nor the origin of the bleeding determined, except that in most of them the bladder as a possible source was excluded by cystoscopy. There were twenty-five cases in this group.

An analysis of this group showed that five of the twenty-five patients refused instrumental examination. The remaining twenty patients presented themselves at a time during which their urine was free from blood. Cystoscopic examination failed to demonstrate changes about the ureteral orifices that might have been helpful in determining whether the bleeding came from the right or left side. In one of the patients, cystoscopy could not be carried out because of the presence of urethral strictures. In six cases complete examinations were made. Cystoscopic examination, ureteral catheterization, cultures of the urine, Roentgen-ray examination and pyelography were completely negative. One patient, although not bleeding at the time of the examination, showed pure cultures of streptococci from the kidney urine. In one case a few granular casts were found; otherwise the examination was completely negative.

I do not think one is justified in assuming that these six cases belong to the group of "essential hematuria," because no cause for the bleeding was demonstrated; but that they are the expressions of our present diagnostic limitations, and that they should be subjected to further clinical observation. The remaining cases in this group, for various reasons, were not subjected to a complete examination, and hence their etiology was not determined.

Regarding the incidence of sex: Of the thirty-two patients with carcinoma of the bladder, twenty-three were male and nine were female. Of the twenty-six patients with bladder papilloma, nineteen were male and seven were female. Thirteen cases of bladder calculus occurred in the male and one in the female. All the cases of ureteral stone were in the male, as were all of the cases of tuberculosis of the bladder. Kidney tuberculosis was found more frequently in the female. The patients having ureteral stone were all male, and all of the cases of nephritis with the exception of one were found in the male.

The youngest patient was 5 years old and the oldest 84.

CONCLUSIONS

1. A study of these 238 cases demonstrates that stone, tumor and tuberculosis are the three most frequent causes of profuse urinary hemorrhage.

2. Because of the frequent occurrence of hematuria as a symptom of tumor formation in the urinary tract, this possibility should be considered in each case of profuse painless hematuria, until such possibility is definitely excluded.

3. The doctrine of essential hematuria has worked incalculable harm, and must be discouraged. Only too often it is used as a cloak for ignorance.

4. The importance of hematuria and the necessity for determining its cause must be impressed on each patient suffering with urinary hemorrhage.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. William F. Braasch, Rochester, Minn.: As Dr. Kretschmer called our attention to the fact that hematuria means malignancy in a high percentage of cases, hematuria and malignancy should in the minds of the laity be regarded as synonymous. This fact has been brought out by others. In spite of all that has been written and said before the medical profession and the laity that they should regard it as they do a tumor of the breast, it is remarkable the large number of cases of hematuria we observe existing for a number of years without any attempt being made to ascertain their source. It shows that some of us are not doing our duty. Whether or not the malignancy is in the bladder or in the kidney is of secondary importance; the fact that it can be there is the all important thing. Of course, as Dr. Kretschmer pointed out, hematuria may be due to a great variety of causes, but we should always exclude that first. Dr. Kretschmer called attention to the fact that the term "essential hematuria" should not be used. While that is a very poor term, there unquestionably is a nonmalignant condition, which causes renal hematuria, of which we have not yet discovered the etiology. In my opinion many of them are due to chronic insidious infections confined around the papillae. I have seen a number of cases. The term "essential hematuria" must be retained for the want of a better term.

Dr. Martin Krotoszyner, San Francisco: I wish to report an interesting observation, illustrating the point that was brought out in Dr. Kretschmer's paper. A man of 81, with intermittent attacks of painless and copious hematuria, was observed at the hospital during a period of six months. The attacks occurred at intervals of about ten to twenty days, lasting not longer than forty-eight hours, and were traced to a focus in the left kidney. Palpation was negative. There was no marked difference in renal function on the affected side. A tentative diagnosis of malignancy of the left kidney was made. The patient refused operation. At the necropsy a small uric acid calculus was found, floating in the moderately enlarged renal pelvis of the left kidney. Hematuria, in all probability, had been due to erosion of a blood vessel by the rough calculus.

Dr. C. M. Harpster, Toledo, Ohio: I have encountered two cases of anomalous vessels going to the pelvis of the kidney. In both of these the bleeding was so violent that I did a nephrectomy. In one of them I found the anomalous vessel was divided into three branches coming to the upper pole. In the second case there was a single anomalous vessel going to the lower pole. I do not know how to explain the intense hemorrhage which took place here unless it was some interference with or obstruction of the ureter itself. In the first case I encountered the bleeding was so violent when the kidney was removed that I made a blind plunge and secured vessels. If Dr. Kretschmer can tell me why these kidneys bled so I will appreciate it.

Dr. R. L. Payne, Jr., Norfolk, Va.: The ratio incidence of hemorrhage with reference to malignancy and other causes was very instructive. It is the unsolved problem of symptomless unilateral hematuria, however, that should interest us more than the stereotyped varieties that we are all recognizing. I have been interested in this symptomless hematuria for about four and a half years, and have done a lot of experimental work. We have had eleven cases in the human, and we believe that we can show that there was some form of active nephritis. In the first eight cases nephrotomies were done, and sections were made from the cortex only. These sections all showed some form of chronic inflammatory reaction which we were able to call, in one form or another, an interstitial or a glomerular nephritis. Fifteen months ago we did our first nephrectomy in one of these cases. In this kidney we found a condition which probably led us to understand for the first time how these kidneys bleed. In other words, we were able to show the definite location of chronic inflammatory changes to be in the midzone and in the pyramids and the straight veins of the pelvis and that here was the actual source of the hemorrhage. In other words, we were able to demonstrate in this kidney the actual ruptured vessels on the very surface of a papilla. Since that time we have had two other human cases, one of our own and one that was removed by another surgeon and sent to us for study, which showed identically the same conditions. Many of these cases have been reported as a nephritis, or a lot of these cases from which a small section was removed from the cortex and nothing found would probably fall in this category, and that explains why so few of these cases were cleared up from a causative viewpoint. In our cases a definite obstruction of the veins was present. In the cortex there is absolutely no change, or very little, if any. In the midzone there has occurred a definite obstruction of the veins as follows: In some areas when the sections were taken from the cortex completely down through the papilla we were able to show a primary recent focus of infection, as evidenced by polymorphonuclear leukocytes, fibrin and red blood cells. In the same section adjoining this we are able to show where some of these acute focal infections have healed, with the deposition of fibrous tissue. Adjoining and in these sections of chronic inflammatory deposits there are large and hugely dilated venules, the straight veins coming up from the papillae, and we believe that it is this obstruction in the midzone and pyramids that is causing the hemorrhage in these cases. Farther down toward the papillae from the midzone we have been able to show in these cases a considerable increase in the dilatation of the venules, and actually to demonstrate the ruptured capillaries on the surface of the papillae. It is very simple to produce an experimental nephritis in the dog, but it is difficult to produce a hematuria more or less analogous to the one we are talking about. We have attempted to secure this condition in a large number of dogs, and in six dogs we have produced hematuria; and the pathologic findings coincide with the lesions found in the human kidney, namely, no change in the cortex, an overgrowth of chronic inflammatory tissue in the midzone, with an obstruction to the return venous flow from the pyramid and resulting rupture of the veins with hemorrhage.

DR. I. SIMONS, Nashville, Tenn.: In regard to hematuria from one single kidney, I encountered one case which, while it is not unique, seems to be of some interest. The patient was about five months pregnant. She had had what was apparently a pyelitis on the right side. She had pain, chills, fever and sweats. On the day that I saw her she began to bleed very profusely. On cystoscopy, to my extreme surprise, I found the hemorrhage coming from the left side. Catheterization of the right ureter showed some pus and colon bacillus in pure culture. The blood was seen spurting out of the ~~left~~ ureter three or four times, and at that point I passed the catheter up the left ureter. No urine appeared at all. I intended to wash the right kidney, but on account of the fact that there was no secretion on the left side, I desisted. The patient immediately began to improve, without washing the pelvis at all, but was put on vaccine and promptly recovered, so that she was able to leave the hospital within a month and a half. I believe it is possible to get an acute sympathetic congestion of one kidney due to a lesion in the other kidney, although it is possible that there may have been an inflammatory condition of a transient nature in the bleeding kidney.

DR. H. L. KRETSCHMER, Chicago: The object of my paper was not to dwell on essential hematuria so much as to bring out the point Dr. Braasch mentioned, namely, that a campaign of education should be started to call the attention not only of physicians but also of the laity to the importance of hematuria as a symptom. The term "essential hematuria" is simply an expression of our diagnostic limitations. I do not believe we are justified in saying that there is no cause present to account for the hemorrhage because we cannot find one. Dr. Payne said that his patient had pain on the right side and bleeding on the left side. In my paper I called attention to the fact that some of the patients had bilateral lesions, and that only one side was bleeding at the time of examination. I believe it is possible that his patient had a bilateral infection, but at the time he cystoscoped her, only one kidney was bleeding. I do not know why Dr. Harpster's patient was bleeding.

ROUTINE SPINAL ANALGESIA

WITH REPORT OF 6,229 CASES

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In 1909 when work on the Panama Canal was being vigorously pushed, Hospital Santo Tomas, the government hospital of the Republic of Panama, found its admissions increasing rapidly without a corresponding increase in equipment and assistance. For this reason more than others, the surgical staff began the use of spinal anesthesia. Since that time it has been used as a routine procedure, except when contraindicated, for all surgical operations below the umbilicus. It has been used frequently for operations on the upper abdomen and rarely for higher regions of the body. The administration of the anesthetic has not been restricted to any one or to any set of operators, but has been used by new interns. In all, twenty-seven different physicians have contributed to this series of cases. This, of course, is not conducive to the best results, but the opportunity to review results under these conditions is interesting and instructive.

The majority of our patients are West Indian negroes and native Panamanians of the poorer classes, of low mentality, and are by no means neurotic in tendency. They submit to operation with a minimum of mental distress. These factors are of great importance in this method. We have found spinal analgesia much less satisfactory on white American and European patients than on those spoken of above. They seem to require a smaller dose to bring on toxic manifestations, they are much more apprehensive, and unfavorable postoperative effects are more frequent and more severe. To children under 5 years of age we usually give a general anesthetic, although we have used spinal analgesia on children as young as 1 year. Patients in a state of shock from hemorrhage or other cause, and patients with a very low blood pressure from any cause have not been chosen for spinal anesthesia.

In addition we have chosen not to use spinal analgesia on any patients who were prejudiced against the method, in extremely nervous patients, in patients having marked spinal deformity or diseases involving the spinal cord or peripheral nerves, or in patients having a superficial infection near the site for puncture.

In the beginning, many different drugs were tried, both separately and in combination, and with the addition of strychnin and epinephrin. We have obtained the most consistently good results with the following preparation, so that we now use it exclusively:

	Ampule	
	0.5 c.c.	1 c.c.
Stovain	0.05 gm.	0.1 gm.
Sodium chlorid	0.05 gm.	0.1 gm.
Distilled water	0.5 c.c.	1 c.c.

DOSAGE AND TECHNIC

Formerly in long operations we gave an average dose of 0.085 gm., with a maximum of 0.1 gm. in very robust persons. In the last two years we have cut down the dose to an average of 0.07 gm., with a maximum of 0.085 gm. It seems unwise to exceed this, on account of the high percentage of patients who vomit and show other toxic symptoms if a larger dose is given. The duration of anesthesia will usually bear a direct relation to the dose; hence we vary the dose according to the amount of time required for the operation. For operations requiring one-half hour or less, 5 cg. are given. For longer operations the dose is increased proportionately.

For operations below the symphysis pubis, the spaces between the third and fourth or fourth and fifth lumbar vertebrae are chosen. The solution will in most cases gravitate to the sacral curve, and analgesia will be confined to parts below the umbilicus. When it is especially important that there shall be no diffusion upward, the injection is given between the third and fourth in the sitting position, the patient being allowed to remain in that position for about three minutes. Ordinarily the injection is done with the patient lying on his left side. For anything above the pubis, the spaces between the second and third or first and second are chosen. We have found that our solution injected into the first or second space will usually gravitate to the middle of the dorsal curve with the patient in the recumbent position, and that the average limit of analgesia is a little above the tip of the ensiform cartilage. If the head of the table is slightly lowered, immediately after the injection, the anesthesia will be more profound, and more lasting in the upper abdomen. Practically all the operations on the upper abdomen and chest have been done successfully with this technic. When we have anticipated the necessity for a long operation in the upper abdomen, we have injected the area of the cord directly supplying the operative field, as suggested by Babcock.

RESULTS

Failures.—We are unable to give a statement of the percentage of failures for the entire series because the records are not complete in this respect. Following all cases for a period of three months in the present year we note the following:

In 226 consecutive cases injected by one having had a large experience in the method, there was one complete and one partial failure, about 0.8 per cent. In 479 cases injected by six different physicians there were sixteen complete failures, nine partial failures and four repeated injections, about 6.25 per cent. failures. A complete failure is considered one in which pain sense and motor control are not lost, making it impossible to operate. In partial failure there is some loss of pain sense and motor control, but not sufficient for painless operation. The injection is repeated when there has been a complete failure, if it will not cause too much inconvenience. It is not dangerous to repeat the injection; but if the operative field has been prepared in the mean time, one hesitates to disturb everything and turn the patient on his side for a second injection. In this case we usually give a general anesthetic. Practically all failures are the result of errors in technic and improperly prepared or deteriorated solutions.

Favorable and Unfavorable Features During Operations.—The most gratifying features at the time of the operation are the complete muscular relaxation and the contracted condition of the intestine. It is possible to perform extensive pelvic operations through a very small incision. The intestine can be separated from the operative field with a minimum of handling. This probably accounts for the fact that we see much less postoperative distention after spinal analgesia than after ether narcosis. The complete relaxation of the sphincter ani is a distinct advantage in operations on the rectum and anus. There is no operative shock in extra-abdominal or pelvic operations.

In operations below the pubis in which the usual dose is 0.05 gm., a little over 1 per cent. of the patients vomit. In abdominal operations below the umbilicus in which the Trendelenburg position is not used, 4 per cent. vomit. In the same class of cases in which the Trendelenburg position is used, a little over 9 per cent. vomit. The vomiting is preceded by nausea, restlessness, sweating, pallor, faintness and air hunger. One or more of these symptoms may be present without vomiting. We have repeatedly verified the fact that these symptoms begin to appear in from twelve to twenty-five minutes after the injection. This corresponds to the time when the drop in blood pressure has reached its lowest point. Ordinarily all these symptoms pass off in a few minutes without treatment. They are more quickly dissipated by strychnin, caffein or respired ether, and in severe cases by the intravenous injection of physiologic sodium chlorid solution containing from 5 to 10 minims of epinephrin solution. These symptoms are probably due to too rapid diffusion of the drug to the medullary centers.

On three occasions it has been necessary to stop the operation temporarily on account of respiratory failure. Artificial respiration was begun and continued in each case until the patient was able to breathe. In one of the cases it was necessary to continue the artificial respiration fifty minutes. (In this case we were trying Jonnesco's method. The patient was operated on for tuberculosis of the cervical glands.) All three patients recovered, and the operation was completed in each case without a general anesthetic.

With our system of dosage for operations in the pelvis the average duration of anesthesia is fifty minutes. The limits of duration are from twenty minutes to one hour and forty minutes. Too short duration of anesthesia has been a distinct disadvantage in some cases, necessitating a supplementary general anesthetic.

We have noticed at times a loss of pain sense without loss of motor control. In this case absence of relaxation might be an objectionable feature.

It has been necessary on a few occasions to render the patient unconscious with a general anesthetic on account of extreme nervousness, even when the injection had been otherwise a success.

After-Effects.—Vomiting is a very uncommon aftereffect. It has been noted at times in conjunction with symptoms of meningismus, occurring usually about the third day. If postoperative vomiting occurs, it can usually be traced to some definite cause other than that of the anesthetic.

Mild headache and backache occurred in about 20 per cent. of the cases. They yield readily to the usual headache remedies. The severer type of headache associated with vertigo, severe backache, stiff neck, etc., is much less frequent. In our wards it occurs in about 1 per cent. of cases. It is due to slight hemorrhage into the subarachnoid space from faulty puncture. We believe that the condition is an aseptic inflammation of the meninges, due to the presence of a foreign body (blood), in the cerebrospinal fluid. The most effective treatment is repeated spinal puncture, from 10 to 25 c.c. of cerebrospinal fluid being drawn off, each time. Symptoms usually last from five to eight days, but may continue in a milder degree from two to three weeks. Vertigo is usually the last symptom to disappear. Headaches from deteriorated solutions are much milder than this type, and usually occur in groups.

Temporary loss of vesical control is fairly frequent, following operations on the rectum and perineum. We have never observed a permanent loss of anal or vesical sphincteric control. In the last 3,000 cases there have been two cases in which vesical control was absent for more than two weeks. Similar cases are not infrequent following general anesthetics.

OPERATIONS PERFORMED UNDER SPINAL ANALGESIA IN SANTO TOMAS HOSPITAL, 1909-1916 *

	No.
Chest:	
Wire for fracture	3
Liver abscess	12
Empyema	3
Wounds	2
Abdomen:	
Gastro-enterostomy	2
Tumors	17
Wounds of stomach	4
Fistulas	7
Exploratory	9
Splenectomy	4
Splenopexy	2
Intestine:	
Suture	6
Resection	12
Short circuit	3
Obstruction	14
Meckel's diverticulum	2
Intussusception	3
Fecal fistula	8
Ulcer	1
Tuberculous peritonitis	9
Peritonitis, other forms	12
Appendectomy	451
Prolapse rectum	8
Stricture rectum	37
Hemorrhoids	264
Fistula in ano	97
Cholecystotomy	3
Kidneys:	
Nephropexy	8
Nephrectomy	3
Ureters plastic	1
Gynecology:	
Hysterectomy	341
Myomectomy	10
Tubes and ovaries	513
Suspension of uterus	126
Perineorrhaphy	48
Curettage of uterus	384
Operations on cervix	28
Rectovaginal fistula	5
Vesicovaginal fistula	4
Hernia:	
Inguinal	687
Femoral	17
Ventral	30
Umbilical	6
Epigastric	2
Genito-Urinary:	
Inguinal adenitis	330
Circumcision	377
Internal urethrotomy	180
External urethrotomy	135
Hydrocele	201
Prostate (infrequent)	7
Amputation of penis	15
Varicocele	18
Testicle	21
Plastic on urethra	9
Extremities:	
Amputation	98
Fractures:	
Wire	18
Plate	13
Graft	7
Nail	2
Cast	90
Infections	482
Ulcers	362
Varicose veins	9
Wounds	66
Tumors	58
Osteomyelitis	42
Arthroplasty	4
Popliteal aneurysm	2
Aspiration of joints	20
Club feet	5
Cystoscopies, examination of fractures, vaginal examination, repeated injections, emergency wounds, etc.	529
Total	6,229

* In many cases more than one operation was done. Each number represents a separate patient.

In three cases we have noticed symptoms pointing to direct injury of one or more branches of the cauda equina. The patients have complained of pain, followed by parasthesias and anesthesia over a limited area of the buttocks or legs. All have been unilateral. All three were improving at the time when they left the hospital. There was no disability.

It is impossible for us to have an efficient follow up system in this country, so that some of the late after-effects might escape our observation. But this hospital is the only charity hospital in the Republic of Panama, and it is safe to assume that if a patient developed anything of a serious nature he would almost certainly return to us.

We have observed no case in which there was a permanent paralysis of any kind. We have never seen gangrene of any structure resulting from spinal analgesia.

There have been no cases of meningitis developing after the puncture. No case has been observed in which the puncture seems to have caused a point of lowered resistance, for the development of tuberculous or other forms of meningitis or any other spinal lesion.

In view of the reported frequency of ocular palsy, namely, 1 : 400, we are at a loss to understand why we have not observed this condition in a single case. It is possible that in the earlier part of the series some cases may have escaped our attention; but in the past four years when the cases have been more carefully observed, we have not encountered a single case. As it is said to occur from seven to thirteen days after injection, some cases may have developed after the patients had been discharged from the hospital.

One patient developed a marked degree of mental derangement which lasted fifteen days, after which she recovered completely. She had undergone a panhysterectomy.

Deaths.—There have been four deaths in which spinal analgesia has been a factor. In only one did it seem to be the sole cause of death:

> A young woman was given 0.075 gm. of stovain in the second lumbar space for an operation for retroversion. In the midst of the operation she gradually went into marked collapse, and the radial pulse could not be felt. There was no respiratory paralysis. Ten minims of epinephrin solution in 0.5 liter of normal saline were given slowly intravenously. The symptoms of collapse quickly disappeared, and the radial pulse became strong and full. The operation was completed, and the patient was sent to the ward in fair condition. Twenty minutes later she was found in collapse again. The same treatment was given with prompt improvement. After the immediate effects of the epinephrin had worn off the pulse became very slow and very weak. Stimulants were given, with slight improvement. In the afternoon, four and one-half hours after the operation, the patient again went into collapse. Epinephrin was given but with very slight beneficial effect. The pulse became weaker and slower until death, about twenty minutes after the last injection of epinephrin.

We feel that this death was due to too rapid diffusion of the stovain to the higher centers, on account of placing the patient too quickly in the Trendelenburg position. We have observed two other cases in a similar condition of collapse. Both patients, however, recovered.

> A second death occurred in a strong, healthy man who was about to be circumcised. After the spinal needle had entered the subarachnoid space there was a scant flow of fluid. The patient was (unfortunately) instructed to cough, and fluid spurted from the needle. The patient went into collapse immediately and was also unable to breathe. Artificial respiration was started and stimulants were given, but with no effect. The patient died almost immediately. Stovain had not yet been injected. It was suggested that hernia of the medulla into the foramen magnum from relief of pressure during coughing might have caused medullary paralysis. This could not be confirmed at necropsy.

This, of course, is a death from spinal puncture; but as spinal puncture is a part of the procedure in spinal analgesia, its mortality should be considered with that of the latter.

> The third death occurred in a woman who was undergoing an operation for the removal of a large ovarian cyst. The patient remained in good condition until the cyst was accidentally ruptured during the dissection. The cyst emptied itself almost immediately and, at the same time, the woman went into a state of shock and died in a few minutes, on the operating table. We believe that the only part which the anesthetic could have played in the cause of this death was

to lower the blood pressure slightly and thus render the patient more vulnerable to shock.

A fourth case, a pregnant woman, was given stovain, preparatory to a cesarean section for eclampsia. Having a very high blood pressure, she was considered a favorable subject for spinal analgesia. Shortly after the injection and before the operation had been begun, she went into a violent eclamptic convulsion. It is possible that the convulsion caused rapid diffusion of the stovain to the higher centers with resulting respiratory failure and collapse. Two of the physicians present were of the opinion that the convulsion itself was a fatal one and that the stovain was not the cause of death. The woman became very cyanotic and apparently died from asphyxia.

In a general way we are able to confirm Babcock's conclusions with reference to a comparative consideration of spinal analgesia and ether narcosis. Each has its advantageous and disadvantageous features. While the immediate operative mortality of spinal analgesia is perhaps higher than that of ether, the additional mortality from postoperative complications following ether narcosis would probably about equalize them: There is no condition following spinal analgesia comparable to ether pneumonia in its mortality.

Certain points brought out in this paper indicate that the best results cannot be obtained unless one especially qualified administers the anesthetic. While the unfavorable features have not been excessive in this series, we feel sure that they could have been reduced considerably in the hands of one or several experienced men. Ether is undoubtedly better adapted to routine use.

THE FIELD OF SPINAL ANALGESIA

Spinal analgesia has a fairly wide field in which it is the anesthetic of choice, in many respects, namely, for hernia, except those varieties occurring above the umbilicus; all genito-urinary operations except those involving the kidney and upper ureters, and for operations on the rectum, anus, perineum, vagina, cervix and lower extremities.

Pelvic operations and other intra-abdominal operations below the umbilicus can be done very satisfactorily with spinal anesthesia. The Trendelenburg position, which is used in the majority of these operations, offers some difficulties to safe anesthetization and is responsible for some objectionable features, such as a high percentage of vomiting, respiratory failure and collapse.

Spinal anesthesia does not seem to be sufficiently satisfactory for operations on the upper abdomen and thorax to warrant its general use here. When there are contraindications to general anesthesia, or when spinal anesthesia seems to be specially indicated for reasons based on physiologic action, it may be chosen.

Our experience on higher regions of the body is limited to two cases, both of which almost terminated disastrously.

CONCLUSIONS

It has been our purpose in this paper merely to present in a general way this series of cases without attempting to enter into a discussion of the many important features of spinal anesthesia. Our attitude in regard to the method can be summed up briefly:

It has a restricted field in which it is as safe and as efficient as any general anesthetic, and in addition offers certain advantageous features. It has a wider field in which it can be used satisfactorily and safely when general anesthetics are contraindicated. There are definite contraindications to its use, and disregard of these will certainly lead to unsatisfactory and even disastrous results. Special skill is required for the successful use of spinal anesthesia, particularly in its selective field when it is chosen as the least dangerous anesthetic in desperate cases.

Santo Tomas Hospital.

THE PRESENT STATUS OF ABDOMINAL CESAREAN SECTION

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The published statistics of the results of the abdominal cesarean section would seem to prove that it is an operation of such comparative safety that there can be little or no question that it should be classed as one of the greatest advances of modern obstetrics. Apparently it offers a safe and easy method for the delivery of an uninjured, healthy child, with a minimum of suffering and risk to the mother in cases which would possibly end disastrously if pelvic delivery were attempted. Although during its period of development the indications for which cesarean section was performed were practically limited to disproportion between the fetal head and the maternal pelvis, the excellent results which followed its employment in properly selected cases have led to a marked broadening of the indications. The time has now been reached when some operators seem to resort to it for slighter indications than those for which they would perform a low forceps operation, exercising little or no care in the selection of proper cases, with the result that although the published statistics still show it to be a safe surgical procedure under proper conditions, the unpublished results are appallingly bad.

A chance remark made to me by the wife of a competent surgeon practicing in one of the smaller cities near Boston first called my attention to this fact. I had operated on her for the repair of the results of a brutal forceps delivery through a contracted pelvis, and had advised abdominal delivery in future labors. Her reply was to the effect that in their community cesarean section had proved universally fatal to the mother, a statement which led me to investigate the unpublished statistics of cesarean section whenever the opportunity offered, with the result that I am convinced that except in the practice of trained obstetric surgeons, cesarean section can in no sense be considered as a life saving operation, except for the child. I believe that if we could only collect the statistics from the suburban hospitals, or even from the private hospitals of our larger cities, we should be compelled to admit that there is a surprisingly high maternal mortality attendant on this operation, the true indication for which is the saving of fetal life at the expense of little or no increased risk to the mother.

In four cities of from 25,000 to 40,000 inhabitants within 40 miles of Boston, I collected the following data:

In A, no patient on whom cesarean section has been performed is known to have recovered.

In B, the mortality, as personally stated by one of the local surgeons, is from 60 to 75 per cent.

In C, cesarean section is supposed to be a universally fatal operation when performed by the local surgeons.

In D, cesarean section is an operation of from 10 to 20 per cent. mortality in average cases; but since it has been adopted as the routine method of delivery in eclampsia the mortality has greatly increased, it being over 50 per cent. in these cases.

In well equipped private hospitals in Boston, seven patients are known to have been lost recently after operation by supposedly well trained surgeons.

I cannot vouch for the accuracy of these figures, but they demonstrate clearly what is going on in the smaller cities near Boston, and there seems to be no reason to believe that the results are much better in other parts of the country.

R. W. Holmes[1] says that "one who has a mortality of 5 per cent. or more in his cesarean sections should revise his indications — should use discrimination in his selection of cases." This statement, while undoubtedly true, does not go far enough. I believe that every surgeon who loses a case of cesarean section should consider most carefully the causes which have entered into his patient's death, especially with relation to his choice of cesarean section as the operation of election, and also with regard to his operative technic, in order to discover, if possible, the source of trouble so as to prevent similar results in future work. The majority of operators apparently choose cesarean section as a panacea for all obstetric difficulties when some other method of delivery should have been selected, and then blame the patient or some one else for the bad result, forgetting that the responsibility is theirs and that there are certain well known factors which render the operation safe or extremely dangerous, according as they are strictly adhered to or neglected. The primary cause of most bad results is either a failure to recognize the contraindications to the operation or an improper surgical technic, and the responsibility rests with the surgeon.

Inquiry as to the general conditions which have led to these bad results leads me to believe that the principal underlying cause is a lack of knowledge on the part of the average practitioner as to what constitute the contraindications to an abdominal delivery, which suggests that there is a fundamental error in the teaching of obstetrics. The medical student is taught the indications for the operation; he sees the operation performed under proper conditions with brilliant results, and he is impressed with the ease of the operation, as compared with a difficult pelvic delivery, and the satisfactory after-results for both patients. He is not sufficiently taught in regard to the bad results which follow the operation, if performed in improperly selected cases, and his subsequent reading does not educate him on this point, since few except the successful operations get into the literature, and the possible dangers of the operation are either ignored or slighted.

The standard which is set for obstetric care in general practice is so low that, outside of the practice of specialists or general practitioners who have taken special obstetric training, the study of the patient during pregnancy, particularly with regard to the method of delivery best suited to her individual needs, is practically neglected, and the average patient comes to labor without having received any prenatal study. The result is that the great majority of women are allowed to enter on labor without ever having been carefully examined, and, therefore, cesarean section is seldom undertaken until the failure of labor and often of operation has demonstrated that the delivery of a living child through the pelvis is impossible, except by pubiotomy, which is an unknown operation in general practice. Cesarean section is then performed as an operation of last resort for the sake of the child, and the patient, often already infected, dies, or recovers after a prolonged illness.

Experience has shown that certain principles should govern the choice of operation and that every departure from them renders a patient a doubtful or a bad risk for cesarean section. There is not the slightest doubt that if the poor risks are delivered by some other method, even though the sacrifice of the child may be necessary, many maternal lives will be saved which are now sacrificed unnecessarily, at the expense of a relatively small increase in the infant mortality.

Cesarean section performed by a competent surgeon on a healthy, uninfected patient under proper conditions is an operation which should be attended by little, if any, higher mortality than is to be expected in ordinary clean abdominal surgery on patients who are considered good surgical risks. If, however, any one of these conditions is disregarded, the prognosis will be at once materially altered for the worse, and it behooves the operating surgeon to consider carefully in each individual case whether the patient is a proper risk for an abdominal delivery or whether some contraindication to the operation is present. If the latter proves to be the case, he must determine whether delivery may not be effected in some other way with less risk to the mother, and if such proves to be the case it is his duty to refuse operation, even though this may involve a deliberate sacrifice of the child. The only exception to this rule should be that if the cesarean section is demanded by both husband and wife for the sake of the child, after the risks of the operation have been fully explained to them, the surgeon may in exceptional cases, when no more than a reasonable doubt exists as to the outcome, take a somewhat increased risk for the mother for the sake of a child which is in good condition. The factors which should be taken into consideration in making a decision are:

The condition of the patient, both as regards the possibility of uterine infection and as regards complicating diseases, which increase the danger of the operation.

The circumstances under which the patient is placed, both as regards the possibility of an aseptic operation and proper after-care.

The skill of the medical attendants to deal with the special problems which the case presents.

The problem will often prove to be a complicated one and its solution extremely difficult, but it must always be remembered that operation in improperly selected cases means the probable death of the mother from peritoneal infection, the patient having little chance for her life, and that, therefore, vaginal delivery is always to be advised when possible in doubtful cases rather than to subject the patient to the grave risk which abdominal delivery entails in the presence of uterine infection.

The most essential factor for success in cesarean section is that cases for operation should be selected with the greatest care and that operation should be refused to all patients in whom uterine infection can be demonstrated or is even seriously suspected, provided delivery can be accomplished by some other means. If, however, abdominal delivery seems to be the only possible solution of the problem, the uterus should be delivered and the peritoneal cavity carefully protected before the uterus is opened, and after the delivery of the child and placenta a complete hysterectomy should be performed, it being a violation of all surgical principles to return an infected uterus to the abdomen to act as a source of peritoneal infection. The greatest care should be taken during the operation to protect the peritoneal cavity from contamination by the infected uterine contents. If infection is only probable but not positive, it may be justifiable, for the sake of the child, to perform an extraperitoneal operation and to leave the uterus; but such a course will be attended by some mortality, and the part of wisdom in doubtful cases is to refuse abdominal delivery when any other method is possible.

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[1] Holmes, R. W.: Obstetrics, a Lost Art: A Criticism of the Promiscuous Indications for Cesarean Section, Surg., Gynec. and Obst., 1915, 21, 636.

To judge from the general results, the conditions which predispose to infection of the uterus, and, therefore, to infection of the peritoneal cavity, if a cesarean section is performed after a test of labor, do not seem to be generally appreciated, and herein lies the explanation of the unnecessary sacrifice of maternal life. Vaginal examination is by far the most common cause of uterine infection; and repeated examination, no matter how careful the aseptic technic may be, should place the patient at least in the suspected class, even if there is no clinical evidence of infection, and render cesarean section an operation to be performed only for absolute indications, and even then with serious misgivings.

Attempts at delivery by the vagina still more increase the risk of a subsequent abdominal delivery, and the obstetrician must realize that a patient on whom a vaginal operation has been attempted unsuccessfully is an extremely bad risk for a cesarean section. If, therefore, he attempts a high forceps operation and fails, cesarean section is contraindicated, and the patient should be delivered by craniotomy or pubiotomy and not by section, no matter how careful he believes his asepsis to have been. Undoubtedly a majority of these patients will recover, if delivered abdominally after a tentative application of forceps, but it is the minority which dies that is important, and I believe that abdominal delivery should be refused to all the patients in this class for the sake of this minority. This is particularly true if the attempt at extraction has been anything more than tentative, unless the value of the child to its parents is such that the mother is willing to take a very serious risk for its sake; and even then I do not believe that the surgeon should allow operation to be forced on him against his better judgment.

Even though there has been no vaginal interference whatever, there is no doubt that the prognosis of cesarean section is materially altered for the worse by the mere fact that the patient has been in active labor for a number of hours, the danger being greater the longer and more severe the labor. A few hours of moderate labor do little, if any, harm; but the exhausted patient is a poor surgical risk, and the results on patients who have been subjected to a true test of labor are distinctly worse, from the standpoints both of morbidity and mortality, than if the operation is performed before labor begins or early in labor. For this reason I believe it is unwise to subject a patient to a true test of labor with the intention of performing cesarean section in case of failure, even though no vaginal examinations are made. A few hours of moderate labor will do little harm; but a true test of labor, that is, allowing the patient to go into the second stage to test the molding of the head, is, I believe, unwise, if a cesarean section is contemplated in case of failure. My own custom is to examine all doubtful cases under anesthesia a few days before the probable date of labor, and if I find it impossible to engage the head in the pelvis, and especially if the head overrides the symphysis, to perform cesarean section at the time of election. I recognize that a certain proportion of these patients will mold the head into or through the pelvis if allowed to go into labor, but I prefer to do a few unnecessary operations at the time of election rather than to be forced to perform an occasional late operation on an exhausted patient with the alternative of a pubiotomy or a destructive operation on a living child.

Patients in whom the membranes have been ruptured for a considerable time are especially prone to infection, even if not examined at all. I believe that when early rupture of the membranes occurs in patients in whom some other possible indication for cesarean section exists, the operation should be performed without unnecessary delay; and if it is thought advisable to give a test of labor, that all thought of cesarean section should be definitely abandoned, and the patient's friends informed of this decision so that they may have the opportunity to elect a cesarean, which is probably unnecessary, if they so desire, rather than to take serious risks for the child. I do not, however, consider early rupture of the membranes in itself an indication for cesarean section, no matter what the presentation or position of the child.

Patients suffering from acute infections of any sort, whether local or general, should be classed as poor risks for abdominal delivery, and operation should be refused if any other method of delivery is possible. Chronic diseases complicating pregnancy, such as chronic nephritis, diabetes and heart lesions, render the prognosis of cesarean section more serious than if the operation is performed on a healthy patient. Although in many cases the operation may be advisable, either in spite of the complicating condition or, as sometimes happens, because of it, as offering less risk than a difficult pelvic delivery, the results cannot be expected to compare favorably with those which are performed on patients in good health, and this fact must be taken into consideration in the choice of treatment.

Preeclamptic toxemia and eclampsia are at the present time cited as indications for abdominal delivery. The best results published to date, however, show a distinctly higher mortality than when delivery is effected by other means, and I believe that although in individual cases the operation may be advisable, it is so in spite of and not because of the complicating toxemia. Unquestionably cesarean section offers the easiest means of delivery for the surgeon and often the least shock to the patient, but I do not believe that a thoroughly toxic patient who is suffering from a partial suppression of urine can ever be considered a good risk for abdominal surgery. In a certain number of cases in which some other reason for the operation exists, cesarean section may be advised, but certainly not as a routine procedure in the treatment of these conditions.

It seems hardly necessary to refer to the importance of proper surroundings for an aseptic operation and the possibility of providing proper after-care for these patients. A tenement house is not a proper place for abdominal surgery when better quarters can be provided, and a well equipped hospital will give the best results. Unless proper surroundings can be provided and proper after-care insured, the performance of cesarean section should, under these conditions, be restricted to patients who present absolute indications for abdominal delivery.

Furthermore, cesarean section will prove an exceedingly fatal operation if performed as an obstetric operation by the poorly trained operator. It is an easy operation, it is true; but as in every other major surgical procedure, the better the operator the better the results, and vice versa. In the hands of a properly trained surgeon who has had no obstetric training, abdominal delivery will often prove safer in emergency than a pelvic operation with which he is unfamiliar; but that does not warrant his performing operations unnecessarily when competent advice can be obtained, a condition which frequently arises at the present time.

If these contraindications are scrupulously regarded, I believe fully that abdominal delivery is as safe as a major surgical operation can be, subject only to the ordinary surgical risks, as embolus, ether pneumonia, etc., and should be attended by a mortality of less than 1 per cent. The principal factors which render it safe, however, are the determination of its necessity by careful study of the patient during pregnancy, and the proper preparation of the patient for operation, so that the operation may be performed at a set date, preferably before labor begins, or very early in labor, under proper conditions. Emergency surgery is always relatively unsatisfactory in its results, and cesarean section offers no exception to this rule.

The indications which warrant the performance of cesarean section may be divided into two general groups: those in which for one reason or another an attempt at delivery through the pelvis is practically sure to be attended with disaster for mother or child, or both, and that in which, although delivery by the vagina may be possible, abdominal delivery offers definite advantages to one or both patients. The practical distinction between the two classes of indications depends on the results obtained by the abdominal route. If we accept the published statistics as correct, the indications may be very broad in competent hands; but if the unofficial figures which I have quoted at all represent the facts in general practice, the more the operation is limited to patients in whom it is the only possible method of delivery, the better.

In my opinion, cesarean section is a safe surgical procedure as long as proper care is exercised in the selection of cases for operation, and I believe that most bad results are due either to lack of appreciation of the contraindications to operation or to faulty technic on the part of the operator. I feel, therefore, that in the hands of a competent surgeon the operation may be properly performed for comparatively broad indications. It must be remembered, however, that the consensus of opinion among qualified obstetricians is that if a patient is once delivered by cesarean section it is unwise to subject the uterus to the strain of future labors, and future pregnancies are to be terminated in the same way. Therefore, in young women who may have several children, cesarean section is a questionable procedure when performed for indications which are only temporary in character, such as eclampsia and placenta praevia, when any other method of delivery holds out a reasonable hope of success.

The principal indication for cesarean section is, and always will be, serious disproportion between the fetal head and the pelvis. The determination of the degree of disproportion and the estimation of the liability of the individual to serious dystocia will call for the wisest judgment after thorough examination under anesthesia. If the disproportion is marked, a primary cesarean at the time of election should be advised without hesitation, in spite of the fact that in some cases the test of labor will result in a not unduly difficult pelvic delivery; but the risk to the life of the child and of serious laceration of the mother is too great in these cases to be a proper one. If the disproportion is only moderate and the patient is a young primipara, I believe that she should be subjected to the test of labor in the majority of cases; but if the patient's nervous or physical equipment is such that it is not thought wise to subject her to the strain of the prolonged second stage, which would probably be necessary to mold the head into the pelvis, cesarean section is the operation of choice.

Women whose previous labors have proved unduly difficult and who have lost one or more children from complications incidental to difficult operative deliveries, even though no definite pelvic contraction can be made out, should be classed as proper subjects for cesarean section, and in this class also should be included women who have suffered serious pelvic damage in their previous labors, which has later been repaired, unless some other factor renders them poor abdominal risks. This especially holds true when the patient has suffered a third degree perineal laceration or a vesicovaginal fistula.

A previous cesarean section should always, in my opinion, be followed by cesarean section in subsequent labors. Published cases show that the risk of rupture of the uterine scar, if exposed to the strain of labor, is a definite one, and that the mortality from this cause is higher than the mortality from the repeated cesarean section. Therefore, the repetition of the cesarean section is called for, since it is not possible to predict in a given case whether the scar will rupture or not, irrespective of the method of suture employed or the operative skill of the surgeon in the case. The performance of a primary cesarean section in patients who have no permanent indication, as, for instance, in eclampsia, placenta praevia and the like, should be undertaken only when it seems to be a life saving operation for the child or a health saving operation for the mother, and the family should be informed in regard to the future of the patient when the operation is advised. The fact that in the great majority of cases the scar will *not rupture* is not, in my opinion, any argument for deliberately choosing the greater of two risks for the patient for the sake of avoiding the lesser.

Dystocia, resulting from previous operations, may render a cesarean section necessary in subsequent labors. Ventral fixation, or an improperly chosen method of suspension, which has resulted in fixation, and amputation of the cervix are especially liable to cause trouble in subsequent labors, and patients who have been subjected to such operations should be carefully studied in order to determine what method of delivery is indicated with due regard to the safety of both patients.

In primiparas who have marked valvular lesions of the heart, especially mitral stenosis, cesarean section will, in many cases, prove the safest method of delivery, particularly in women who have had signs of failing compensation during pregnancy. Probably in the majority of these cases, delivery by the vagina can be accomplished without undue risk to life, if the second stage of labor is terminated promptly by forceps; but I believe that the strain of even an average first stage detracts seriously from the reserve power of the diseased heart, and that a cesarean section before labor begins offers the safest method of delivery for these patients, especially when the future health of the patient is taken into consideration.

Women of over 40 in their first pregnancy may very properly be looked on as proper cases for abdominal delivery. The fact that the patient may never have another child, combined with the somewhat increased danger of unsatisfactory labor, which may result in severe pelvic laceration following an operative delivery through rigid soft parts, offers, in my opinion, a proper indication for cesarean section in selected cases. If in addition to rigid soft parts and the relative importance of the child there exists even a slight pelvic contraction, the indication, in my opinion, becomes absolute.

Premature separation of the normally situated placenta with symptoms of severe hemorrhage not infrequently offers a proper indication for abdominal delivery, since in some cases it may be necessary to remove the uterus in order to prevent death from postpartum hemorrhage, as has been recently reported in two instances by J. W. Williams.[2] If the patient can be operated on, under proper conditions, in a well equipped hospital, the indication is a sound one; but if operation is done as an emergency under poor conditions, the mortality will probably be little improved by adopting abdominal delivery as a routine in general practice.

The general indications for the operation are, some obstruction to delivery or the presence of some condition which renders the abdominal route the safer one for mother or child, or both. In the literature of the present day many other indications are advocated: eclampsia, placenta praevia, contraction ring, breech or face presentations in primiparas, general poor equipment for labor, etc. Any one of these indications may furnish a proper indication in the given case when taken into consideration with other complicating factors, but none of them is a sufficient indication for a routine abdominal delivery to be advocated. If operation is undertaken for one of these reasons, the patient or her friends should be carefully informed of the circumstances which render the operation wise, of the dangers of the operation in case of a faulty technic, which is always possible, and of the necessity of future cesarean sections in case the patient becomes pregnant again. In other words, the operation at the best is one to be chosen for good and sufficient reasons, and not one to be undertaken lightly.

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[2] Williams, J. Whitridge: Surg., Gynec. and Obst., November, 1915.

Alcohol Chief Cause of Crime.—Liquor was responsible during 1916 for the greatest crime wave in the history of Harrisburg, Pa., according to the report of Superintendent of Detectives William L. Windsor. The arrests totalled 3,857, nearly 1,000 more than in 1915. Nearly every one of the men and women arrested was either drunk or to some degree under the influence of alcohol.

HUMAN ANTHRAX

REPORT OF AN OUTBREAK AMONG TANNERY WORKERS *

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Twenty-five cases of human anthrax, reported to the state department of health in four months, constitute the severest outbreak of this disease ever recorded in Massachusetts. A clinical and epidemiologic study of these cases has revealed some interesting facts as to the sources and modes of infection, methods of prevention and treatment of this disease.

Epidemiology.—While twenty-three of the twenty-five reported cases were in persons handling hides, the most interesting group consists of twenty cases which were infected from a common source. An analysis of the early reports showed that the infection seemed to be confined to the workers in three tanneries located in adjoining towns. Further study revealed the fact that every one of the persons infected had been handling dried "China" hides.

To find a common source of hide supply for three rival tanneries seemed hopeless. The key to the situation was discovered in the characteristic trade mark stamped on the hides. While all three of the tanneries received hides through Boston and New York brokers, the brokers in turn purchased them through a common agent in New York City. By means of this characteristic trade mark, the particular lot of hides involved was traced through the Boston and New York brokers to a single cargo of hides which entered the United States at the port of New York from Hankau, China. In the portion of China in which these hides originated, anthrax is known to be endemic. From this cargo of hides each one of the tanneries involved received a shipment. Further, the shipping receipts for the hides showed that they arrived before the first case of anthrax occurred.

The next step was to demonstrate the exposure of the infected men to these hides. A comparison of the time when the hides were in the process of being tanned with the working time of the infected men furnished the test. Every one of the men handled the hides bearing the characteristic trade mark. This completed the picture. Hides coming from the infected territory, shipped to the tanneries involved, handled by men who came down with anthrax, with no cases in other tanneries, is sufficient evidence on which to convict this shipment of hides of being the cause of this particular outbreak.

Clinical Histories.—The interesting clinical features of this group of cases may be conveniently condensed into the accompanying table.

Prevention.—The study of anthrax infection, in general, shows that the great majority of the cases in this country are due to infected material imported from abroad, and further, that the infection among tannery workers occurs practically only in the early stages of the tanning process. Therefore, this infection can be controlled, first, by the exclusion of infected material from this country; secondly, by the disinfection of the material after it arrives in this country, and, thirdly, by the safeguarding of the workers who handle the material.

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the authors' reprints. A copy of the latter will be sent by the authors on request.

A careful study of the methods of hide gathering, together with the economic necessity of importing hides, indicates that it would be both futile and unjustified to stop the importation of dried hides.

Second, the United States Treasury regulations under which hides are imported, demanding a certificate as coming from uninfected territory or showing disinfection by immersion in a 1:1,000 solution of mercuric chlorid for thirty minutes, has failed to prevent the importation of anthrax infected hides. The federal authorities at present do not possess a knowledge of the distribution of anthrax infection in foreign countries. The experiments of the United States Department of Agriculture for the disinfection of hides has not resulted in an efficient and practicable disinfectant.

The safeguarding of the workers who handle hides in the early processes of tanning is being very indifferently carried out. Tanneries have for many years been accepted as places where cleanliness was impossible. Little or no attention has been paid to the cleansing and disinfection of the vats and utensils used by the workmen. Consequently, many of these places are highly infected with anthrax spores.

In view of these facts, it will not be possible to control anthrax until at least the latter two methods are more thoroughly carried out.

Treatment.—While it is not within our province to study intimately the treatment of anthrax, our impressions are perhaps worth recording.

In the group of cases under consideration the wide diversity of treatment is striking. In this limited group of cases excision has seemed to be less satisfactory than the expectant treatment, together with forced feeding in an attempt to overcome the infection by fortifying the resistance of the patient.

The serum treatment for anthrax is perhaps the most promising. During the course of this outbreak, through the kindness of the United States Bureau of Animal Industry, we were enabled to make arrangements for securing the serum treatment for this disease. While the limited number of cases to which it has been applied is not sufficient to draw conclusions from, it is surely worth a careful trial.

CONCLUSIONS

1. Anthrax infection is an important occupational disease.
2. The federal authorities should gather information as to the distribution of anthrax infection among cattle in all hide-producing countries.
3. Renewed efforts should be made to discover an efficient method of disinfection which does not injure the hide and is not prohibitive in price.
4. Tannery workers should be safeguarded against this infection.
5. The serum treatment should be thoroughly tried.

OUTLINE OF CLINICAL HISTORIES

No. and Date (1916)	Occupation	Location of Lesions	Treatment	Result
1. Mar. 2	Tannery worker (beam house)	Left side of neck	Excision	Death
2. Mar. 9	Tannery worker (beam house)	Forehead	Antiseptic compresses	Recovery
3. Mar. 13	Tannery worker (beam house)	Forehead	Cauterized; moist mercuric chlorid dressing	Recovery
4. Mar. 14	Dock laborer	Left side of neck	Mercuric chlorid dressing	Death
5. Mar. 14	Tannery worker (beam house)	Right side of neck and right thigh	Excision under ether	Recovery
6. Mar. 16	Tannery worker (beam house)	Left side of neck	Antiseptic compresses; mercuric chlorid dressing	Recovery
7. Mar. 18	Tannery worker (beam house)	Right forearm	Compress —70 per cent. alcohol	Recovery
8. Mar. 21	Tannery worker (beam house)	Left cheek	Boric dressing	Recovery
9. Mar. 21	Tannery worker (hide splitter)	Left side of neck	Mercuric chlorid dressing	Recovery
10. Mar. 21	Tannery worker (die stamper)	Left side of neck	Mercuric chlorid dressing	Recovery
11. Mar. 27	Hide weigher	Left side of neck	Excision; mercuric chlorid dressing	Recovery
12. Apr. 10	Teamster	Left side of neck	Antiseptic mercuric chlorid dressing	Recovery
13. Apr. 11	Tannery worker (beam house)	Right side of neck	Mercuric chlorid dressing	Recovery
14. May 1	Tannery worker (beam house)	Left side of cheek	Mercuric chlorid dressing	Recovery
5. May 1	Tanner	Left cheek	Mercuric chlorid dressing	Recovery
6. May 2	Tannery worker (beam house)	Left ear	Mercuric chlorid dressing	Recovery
17. June 3	Tannery worker (flesher)	Right side of neck	Mercuric chlorid dressing	Death
18. June 4	Tannery worker (beam house)	Left side of neck	Mercuric chlorid dressing; Serum, 45 c.c. and 20 c.c.	Recovery
19. June 16	Tannery worker (beam house)	Right arm	Refused treatment	Recovery as far as known
20. June 27	Tannery worker (beam house)	Right groin	Dry, sterile dressing	Recovery

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Milk and Typhoid Dissemination.—Milk may become infected with typhoid bacilli through essentially the same channels as other foods and beverages, and is probably not more exposed to such infection than are various other foods; certainly it is less exposed than many vegetables in common use, and much less exposed than surface waters. Milk differs from other vehicles of typhoid infection, however, in that it affords an excellent medium for the multiplication of typhoid bacilli; whereas in most other common vehicles of transmission, typhoid bacilli tend under usual conditions to decrease very rapidly.—W. H. Frost, M.D., *Public Health Report*, Dec. 1, 1916.

TRASPINAL TREATMENT OF NEUROSYPHILIS WITH STANDARDIZED SALVARSANIZED SERUM *

WILLARD C. STONER, M.D.
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The value of intraspinal therapy as an adjunct to ıe treatment of neurosyphilis has been established. ufficient work has been done during the past four ears to determine thoroughly its efficiency as a means f relieving symptoms and staying processes. It has timulated renewed interest in the problem of neuroyphilis, and has added to our diagnostic appreciation ıf the condition by encouraging lumbar puncture as ı routine measure in all suspected cases.

It is my purpose to discuss my experiences in the nanagement of seventy-two cases of neurosyphilis during the past two years. These cases came under my observation in a practice limited to the problems of internal medicine.

The technic used is that devised by Ogilvie, which is a modification of the Swift-Ellis method. Fresh blood serum is taken from the patient on the day of the injection, from 0.25 to 0.75 mg. of salvarsan, arsenobenzol or diarsenol is added, and it is placed in a waterbath at 37 C. (98.6 F.) for forty-five minutes and then C. (132.8 F.) for thirty minutes. The usual quan- of blood serum so treated is 10 c.c.; it is injected o the spinal canal by replacing an equal quantity of cerebrospinal fluid. All patients are required to go to the hospital for from twelve to twenty-four hours and remain quietly in bed. The lumbar puncture is done in the usual manner by inserting the needle in the median line between the spinous processes of the third and fourth lumbar vertebrae. The discomfort is generally no greater than that experienced in taking blood from a vein; hence no local anesthetic is needed. Rest in bed is essential, but restriction of diet is not necessary. At least 50 per cent. of the patients do not experience any discomfort, and are able to resume their work the following day. Head pains, such as follow lumbar puncture, in which fluid is not replaced, do not occur. A certain percentage of patients develop pain, characteristic of the disease, from two to four hours after treatment, which passes off in ten or twelve hours. Approximately 25 per cent. of the patients are given codein to get rest. With experience one feels no greater risk in giving intraspinal treatment than intravenous. In none of the seventy-two cases was there evidence of untoward signs following treatments.

The number of treatments given was 252. Of the seventy-two patients, twelve were given only one injection and hence are not considered in determining results. The average number of treatments given a single patient was four. The maximum number was twelve. The results of treatment are given in the accompanying table.

The seventy-two cases consisted of the following clinical classification: cerebrospinal syphilis, 6; cerebral, 15; spinal, 6; tabes, 26; paresis, 6; congenital syphilis, 1; syphilitic endarteritis, 2; spinal myelitis, 2; 1 case of psychosis of questionable classification with positive Wassermann on blood serum and negative lumbar puncture findings; cases in which the clinical picture was only suggestive and treatment was provocative, and hence unclassified, 8.

Of the patients made clinically well, two had been treated intensively previously and were not relieved completely, but were given complete relief by intraspinal treatment, and remain so after a period of one year from last treatment. Seven of the clinically well patients were treated simultaneously, intravenous being alternated with intraspinal treatment. Two patients had been given intensive treatment intravenously previous to intraspinal treatment without relief, and were then given alternating intravenous with intraspinal treatment and completely relieved.

As the analysis shows, only a small percentage of the patients treated had had intensive treatment previously without relief and were completely relieved by intraspinal treatment. It is obvious that we can know positively the value of intraspinal treatment only when it is used independently of other treatment, but subsequently to it. In most cases, intraspinal treatment alone is not indicated for the reason that one is limiting therapy to only a part of the body when the organism as a whole is suffering from the infection.

Experience leads one to believe that intraspinal treatment cannot replace general treatment, but must be used as an adjunct and in conjunction with general management in most cases of neurosyphilis. It must be regarded only as an extra weapon of defense against the activity of an infection which is difficult to combat and until recently has been regarded as hopeless, so far as the affecting of a clinical cure is concerned.

RESULTS OF TREATMENT

Results	Number	Per Cent.
Lymphocyte count made normal	24	40
Wassermann made negative on cerebrospinal fluid with 0.5 c.c.	7	11⅔
Globulin content of fluid made negative	12	20
Negative lumbar puncture made positive by treatment and hence provocative	8	13⅓
Made normal in all lumbar puncture findings	6	10
Improved, but not made normal in one or more findings	22	36⅔
Unimproved on lumbar puncture findings	8	13⅓
Alternate intravenous or simultaneous treatment with either salvarsan or mercury	27	45
No intravenous treatment with intraspinal treatment, but intensive intravenous and mercurial treatment previously	3	5
Both previous intravenous treatment and alternate in conjunction with intraspinal	23	38⅓
Only intraspinal treatment	7	11⅔
Completely relieved of all annoying symptoms and apparently made well	12	20
Improved in one or more symptoms, but not completely relieved	40	66⅔
Improved and afterward relapsed	2	0⅓
No improvement (two advanced paretics, now dead)	6	10

I do not believe that intraspinal therapy is indicated in early neurosyphilitic involvements unless general treatment has failed. Since it is proved that nervous involvement occurs in apparently 100 per cent. of syphilitic infections, and our past experiences teach us that only a comparatively small percentage later on in life develop active neuro-involvement, we must conclude that either spontaneous cures or general management have been quite effective in controlling the infection. So long as the involvement is meningeal in character, in view of the richness of the vascular supply we have a right to believe that general treatment is sufficient. This, however, should be proved on lumbar puncture.

No patient with early syphilis should be dismissed as tentatively cured on a blood reacting negatively to the Wassermann test. On the other hand, a positive lumbar puncture is indication for intraspinal treatment even though there are no definite clinical signs of such involvement, such as nervous irritability or head pains.

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* Read before the Mississippi Valley Medical Association at Indianapolis, Oct. 11, 1916.

It is striking how much relief a single intraspinal treatment will give in early neurosyphilis when general treatment has failed. High cell counts and a positive Wassermann reaction on the fluid are quickly brought to normal, and head pains are almost instantaneously relieved. The tabetic if intensively treated becomes less ataxic, loses his lancinating pains, experiences a disappearance of crisis, and is improved in his mental and physical state. In fact, the sense of relief is so great in certain cases that these patients solicit further treatment. Deep reflex disturbances in the spinal case are often completely relieved. Vertigo and head pains in the cerebral case are controlled.

The clinical improvement does not necessarily parallel the laboratory improvement. As is shown, only a few cases have been made completely negative on lumbar puncture findings, and it is not always in the negative case that the patient is completely relieved of annoying symptoms. The most striking improvement was in cases of tabes which showed negative lumbar punctures some time after treatment.

It is extremely difficult to make a fluid negative, and it is a question just how much value a lumbar puncture has as an index to intensive therapy after symptoms are relieved. Biologic findings alone cannot be used independently of clinical findings as an index to therapy. It is not uncommon to find a blood which cannot be made negative to the Wassermann test after most intensive treatment, and this is more often true of the cerebrospinal fluid. Patients with neuroretinitis are improved under intraspinal management and remain so. One patient with ophthalmoplegia, who previously had been treated in another clinic with mercury without relief, showed a marked improvement after a single intraspinal injection. A patient with congenital syphilis improved materially after two treatments. Paresis has not given satisfactory results; a few patients have given encouragement only to relapse and rapidly grow worse. It is not reasonable to believe that after changes in the deeper structures of brain tissue have taken place, any specific therapy, however administered, is of value.

We have come to realize more than ever before the importance of intensive treatment of syphilitic infections, that our former point of view needs revision, that syphilis, like tuberculosis, is everywhere, that the infection is often present where there is no history of immorality, no history of an initial lesion or manifestations of any character, and that a positive Wassermann or positive lumbar puncture may be our only means of diagnosis. And, too, we must realize that a negative Wassermann on a blood stream does not necessarily rule out syphilis, which is especially true in neurosyphilitic involvement; but, on the other hand, a neurosyphilitic involvement very seldom gives negative lumbar puncture findings.

Not all cases of neurosyphilis are amenable to treatment, it matters not how intensive it may be; but a surprisingly large percentage of patients are made better symptomatically and biologically if treatment is rationally and intensively employed.

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Terminal Disinfection.—Terminal disinfection creates an impression of "something doing," but with advancing scientific knowledge, it is falling more and more into disuse, save for tuberculosis, and is being replaced by concurrent disinfection (that is, of all discharges while the patient is in an infective state).—Alice Hamilton, *Survey*, Jan. 20, 1917.

POSTOPERATIVE COMPLICATIONS FOLLOWING PROSTATECTOMY *

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ROCHESTER, MINN.

While success in prostatectomy cases is dependent mainly on careful preoperative selection and preoperative preparation, many patients who would otherwise recover will die if postoperative care is neglected. Moreover, much can be done after operation to add to the patient's comfort and hasten his convalescence.

In the past few years at the Mayo Clinic, the various operative modifications of suprapubic prostatectomy and subsequent drainage, as well as many variations of postoperative treatment, have been tried out, and either continued or discarded according to their efficacy. After many changes in methods our present and satisfactory technic is briefly as follows:

1. A relatively large incision over a comparatively empty bladder, extraperitoneal, if possible.
2. Rupturing the prostatic capsule by inserting a finger into the urethra, sweeping the gland free from its capsule and delivering it into the bladder, at the same time tearing it from the mucosa of the prostatic urethra. If the capsule bleeds freely, bleeding tags are controlled by continuous catgut sutures or rarely by a long gauze pack brought out through the wound. The wound is closed with the usual catgut and interrupted silkworm sutures with a 32 French, soft, pure rubber double eyed catheter in the upper angle and a small split or half rubber tube in the space of Retzius and out through the lower angle of the wound. The bladder tube is tied with the loose ends of the upper silkworm suture after the skin knot has been tied, so that when the suture is cut to remove the tube, the skin stitch is not disturbed. The tube in the space of Retzius is not sutured, but has a large safety pin in its free end to prevent motion. Ether anesthesia by drop method is used. The operation usually takes from ten to fifteen minutes, its brevity avoiding any ether complications.

When taken from the operating room, the patient is put into a warm bed with hot bottles around him, and rectal saline is started. The bladder is irrigated only sufficiently to keep the tube draining, clots being washed out with a 2-ounce syringe; the size of the syringe avoids overdistention of the bladder. As far as possible, opiates are withheld, though a single dose of morphin and atropin is usually given the first night. Water by mouth is encouraged as soon as the patient awakens from the anesthetic, and light diet is started the morning after the operation, with a generous tray after the fifth day if desired. It is our usual practice to get the patient up on the third day, and earlier if indicated. Cardiac or other complications necessitate a longer stay in bed. One ounce of Epsom salt is given on the third morning. Dressings are changed as necessary. Tubes are undisturbed until the fifth or sixth day, by which time there is a more or less permanent canal formed around the rubber drain which prevents somewhat the spread of urine and infection to the rest of the wound. It is to be remembered, however, that following the drainage of a distended

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* From the Mayo Clinic.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* This paper and the ones by Drs. Gardner and Squier which follow are parts of a symposium on prostatectomy. The first two papers, by Drs. MacGowan, and Young and Frontz, appeared last week.

in preventing clot causes a
a proper position at the time of
o its base later. A continuation
ter after the urine is compara-
; indicates the withdrawal of the
it usually gives immediate relief.
ne tube in the space of Retzius is
wick of gauze with a safety pin
ter tube is replaced on the sixth
le catheter which is held in place
led fishline. The ends of the fish-
the skin with adhesive on opposite
n, so that contact with the wound
changing of dressings is facilitated.
line has the advantage of other
that it does not stretch and is non-
gauze in the space of Retzius is
shortened with each change till it
ut. The bladder drain is replaced
aller catheters as the wound closes.
heter is clamped off for twenty-four
ed. A small, soft catheter may be
ra about the third week if necessary,
continuously, according to how the
whether or not he has used a cathe-
peration. With better postoperative
sity for the use of permanent cathe-
ra is avoided. The silkworm sutures
earlier than the fourteenth day.

in the bladder will close of their own
free from collections, and reasonably
ous suprapubic sinus in the midline
ed at the second operation. The pre-
ain should be made an inch to one side
It will usually close by the time the
f the subsequent operation is ready to
Every effort should be made to stop
rainage from the lower angle of the
the drain has been placed in the space
id to get this part completely healed
ng the tube from the upper angle. It
experience that in almost every instance
sing wound the leakage has been from
le. Keeping the skin wound open at the
nage and using a sharp curet or caustic
of the second week, in addition to keep-
er empty by frequent voiding or catheteri-
usually secure an early closure. Cystos-
always be performed in cases in which a
s; obstructing tags should be removed,
sibility of a lost sponge should be kept in
asionally a plastic closure will be neces-
n it is not advisable to use a catheter in
, a modified colostomy pad and bottle is
l until the suprapubic wound closes. The
oxid and other ointments should be avoided
nd, as they become infected and cannot then
ely removed.

are encouraged to drink water, milk and
in abundance. If the appetite is poor, a
may be given. As soon as the stomach is
grains each of hexamethylenamin and acid
hosphate in solution is given every three
lot packs, subcutaneous, intravenous or rec-
, are used freely when indicated.

COMPLICATIONS

sidering postoperative complications, I have
myself to the more common types, and have not taken into account the numerous terminal infections and complications of fatal cases which bear no relation to the usual postoperative treatment. The patients who have been considered in this review have had the most careful preoperative examination and preoperative preparation, so that many of the usual complications have been reduced or eliminated.

Postoperative complications may be divided into two groups, namely, infections and noninfections. In the first group may be included wound infection, pyelonephritis, epididymitis, phlebitis, cystitis, etc. In the second group are hemorrhage, cardiac disease, acute renal suppression, embolus, apoplexy, etc. Many of the second group, however, may be due indirectly, at least, to infection.

The prevention of infectious complications must be initiated through preparation before prostatectomy, that is to say, by thorough drainage of the bladder and the establishment of immunity against the usual urinary pathogenic organisms. This can be accomplished by improving the general health and increasing the elimination, thus increasing the resistance to infection. When there is marked cystitis, the bladder should be cleared up before prostatectomy. If stones are present, they should be removed.

Wound Infection.—In speaking of wound infection, I refer not to the mild infection which follows any open wound, but to the foul, sloughing infection which may play a major rôle in the causation of such complications as epididymitis, cystitis, pyelonephritis, phlebitis, etc. Care should be taken that at the time of operation the bladder is as clean and as nearly empty as possible, in order that contamination of the wound may be avoided. Sutures should be tied relatively loosely, and the edges of the skin should be carefully approximated without inversion or eversion. Continuous skin sutures of horsehair, catgut, etc., have usually been followed by more infection than interrupted silkworm sutures. Leaving all drains undisturbed until the fifth day unquestionably walls off the drainage and reduces the infection. With the first evidence of redness, swelling or pain in the wound, usually about the third or fourth day, a continuous hot potassium permanganate dressing is applied. The rapidity with which the odor and other evidences of infection disappear after such treatment is astonishing.

Pyelonephritis.—This, probably the most frequent complication, often exists before operation in its various degrees either as the result of vesical retention or antedating any disturbances of the bladder. Serious destruction in one or both kidneys can often be overlooked in the presence of a very large prostate and a purulent bladder, and discovered only at postmortem. When it has not been advisable to perform cystoscopy on the patient, or where the ureters were not located by the cystoscope, a cysto-ureteropyelogram should be made, the bladder having been filled with an opaque medium and the patient placed in the Trendelenburg position for ten minutes and a roentgenogram taken in that position. This sometimes gives a definite idea as to the amount of destruction in one or both kidneys. If the technic is properly carried out, an absence of the medium in the ureter usually means a normally contracted vesico-ureteral valve and an absence of any marked degree of infection. In the presence of infection, the valve is relaxed and the ureter atonic, allowing the free flow of the bladder medium to the ureter and the pelvis of the kidney. All degrees of dilatation are exhibited, from that of slight distention to hat of an extremely dilated sacculated ureter and py-nephrotic kidney.

Acute pyelonephritis may occur at any time from day of the operation to several weeks thereafter.]e symptoms are usually characteristic — several days c increasing fever and malaise, possibly with pain in f back, followed on consecutive days by severe chic hyperexia and sweats and then a gradual su[illegible]ls, of all symptoms. Attacks usually last from t[illegible]nce to a week and tend to recur. Prophylactic [illegible] days consists of (1) avoiding septic collections in [illegible]tment and bladder, (2) forcing fluids,. and (3) [illegible] wound 15 grains each of hexamethylenamin a[illegible]ministering phosphate in solution every four ho[illegible]id acid sodium day after operation. During [illegible]ours from the third should be kept quiet, thou[illegible] an attack the patient Liquid diet, saline laxat[illegible]n not necessarily in bed. (aspirin) if necessary[illegible]ves, and acetylsalicylic acid given. The sympto[illegible]to control the pain, should be but in acute attac[illegible]ns are often alarmingly severe,

Epididymitis[illegible]s the prognosis is often excellent. primarily o[illegible]—This occurs relatively often, either usually [illegible]r secondarily to a previous infection. It is side [illegible]unilateral, though an involvement of the other [illegible] may shortly follow the first. The infection is iten due to the use of a permanent urethral catheter, nd may not appear until several days after the catheer has been removed. As a rule, fever and malaise recede the swelling by a day or two. Slight tenderess can be elicited from the beginning. Keeping the estes well supported is the best prophylaxis. During n attack, support with moderate pressure, an ice bag nd rest, if started early, will be all that is necessary. in most cases the pain begins to subside about the ourth day and the swelling several days later, though some thickening usually persists permanently. Most of the cases in which the patient does not begin to improve by the fourth day will go on to suppuration. In such cases drainage should be instituted as soon as any collection can be detected. Topical applications in the acute stage seem to do harm rather than good. Although vasectomy may reduce the occurrence, it does not preclude it. Heat in our experience has caused more pain and increased the suppuration.

Phlebitis.—This is rather infrequent, and the usual treatment of rest, elevation, bandaging and heat are all that is necessary. When this condition occurs after prostatectomy, it is significant of lowered resistance to infection and is generally followed by other infectious complications. Usually it is not necessary to keep these patients in bed after the first few days. Embolus has never been observed in our cases.

Cystitis.—Cystitis that is serious enough to be termed a complication should be relieved by preoperative treatment, and its recurrence after operation guarded against by thorough drainage and irrigations of boric acid solution or weak permanganate.

Of the complications not directly attributable to infection, immediate or delayed hemorrhage is the most frequent.

Immediate Postoperative Hemorrhage.—This can usually be reduced to a minimum by careful hemostasis in the abdominal wound. When the patient leaves the operating table the surgeon should be sure that there is no gross bleeding from the prostatic capsule. Sewing up the capsule, rubbing the inner surface until it contracts, packing a sponge wrung from boiling water tightly into the capsule for a minute, and lastly applying a gauze pack or Hagner bag will reduce the immediate bleeding to the point of safety. As little irrigation as is consistent with maintaining the tube free from clots seems to lessen the period of bleeding and to reduce the spasm of the bladder. The urine is usually free from gross blood by the second or third day.

Secondary or Delayed Hemorrhage.—This usually comes on from the fourth to the seventh day, and is due to the sloughing of prostatic tags. It occurs most often in patients who are otherwise feeling very well. There may be no pain or other premonitory symptom, and the first indication of trouble is a spasm of the bladder and expulsion both by urethra and by tube of clots and bright blood, the amount often apparently increased by an admixture of urine. This is most alarming to the patient. A hypodermic of morphin, an ice bag, pressure to the perineum and removal of all tubes, as well as absolute rest, is all that is usually necessary in the way of treatment. In the past six years we have had but one serious hemorrhage from the bladder following prostatectomy. In this case, the treatment just described, as well as hot irrigations with astringent solutions, and the administration of horse serum, etc., served only to retard the bleeding somewhat, and the patient became pulseless and unconscious. Transfusion was then resorted to, and gave immediate and permanent results, followed by an uneventful convalescence. While the usual secondary hemorrhage is the slow gradual bleeding of a small vessel, I believe that a sudden, profuse and dangerous hemorrhage might result from the sloughing through of a large vessel in the prostatic capsule. In such cases the bladder should be opened immediately and the bladder and capsule tightly packed with gauze without delay, and without attempting to find the vessel.

The danger from hemorrhage lies, however, not in death from loss of blood, but in the resulting susceptibility to infection in an anemic person of advanced age.

Cardiac Disease.—Heart complications, though frequently found in prostatic patients previous to operation, rarely have to be considered as postoperative complications except as a terminal condition, for cardiac decompensation or borderline cases can usually be detected before operation by means of a careful physical examination, supplemented, if necessary, by Roentgen and electrocardiographic examinations. If compensation is good before operation there is little to fear after operation from a chronic heart condition which rest and digitalis will not relieve.

Renal Insufficiency.—Uremia, thanks to preoperative treatment, is less frequent now than formerly. Two types must be recognized: (1) the acute congestion with suppression of urine, (2) the interstitial type, in which, though large amounts of urine may be voided, its specific gravity is very low and the elimination of toxic products almost negligible. The treatment of both types depends on early recognition and early effort to increase elimination by means of sweats, saline laxatives, liquid diet, rectal, subcutaneous or intravenous salines, and caffein, spartein or digitalis. Lack of appetite, restlessness, irritability, drowsiness, etc., may indicate renal insufficiency, and when such symptoms appear, the treatment should be pushed in order to get results. Twenty-four hours later, when vomiting, hiccup, coma or delirium have develo there is little to be accomplished. In these c careful, well trained nurse saves many lives nizing the trouble and instituting proper early. It has been our experience that complications and the consequent mortality may be reduced by efficient and intelligent nursing. Formerly patients on whom prostatectomies had been done were always attended by women nurses both for special and general care. As a rule these nurses had had little previous training, they despised this class of cases, they took no interest in the results, and only an embolus or a hemorrhage startled them into an appreciation of the presence of a complication when it was still early enough for effective treatment. The condition of the patients' wounds was evident from the fact that as far as possible cases of this kind were isolated, and justifiably, o one ward or hall. At present with a corps of male ıurses who spend practically all of their time on pros-atectomy and allied bladder cases, it is rare that a vound has an odor, and the patients occupy any room n the hospital. The male nurses are alive to the neces-ity of anticipating complications and starting the nec-ssary treatment sufficiently early to do good.

CONCLUSIONS

I would emphasize:

1. The value of nurses who are trained in prostatic ork.
2. The direct ratio between the local infection and e number and severity of complications.
3. The necessity of early recognition and early treat-ıt of complications.

POSTOPERATIVE TREATMENT OF PATIENTS FOLLOWING PROSTATECTOMY *

JAMES A. GARDNER, M.D.

BUFFALO

he postoperative care in surgical cases is concededly of the important factors of an operation. The icy of "watchful waiting" can have no place here, rather one of preparedness. This preparation is bly important in prostatic cases because of the anced age of the patients and usually their lowered lity, resulting from back pressure on the kidneys. make use of an Irish bull, the preoperative prepara- of the patient is the most important part of the operative care.

enerally prostatic patients present a history of fre-ıt urination for some years, to which little attention been given because such frequency was considered tural condition in an old man's life. Only when began to suffer from broken rest or experienced lete retention was their physician's attention d to these urinary symptoms. They are treated dyspepsia, colitis, some cardiac condition, high pressure, Bright's disease — because of a trace bumin in the urine—when the underlying cause is nlarged prostate, with the coincident back pres- on the kidneys.

relieve this condition and to put the patient in the condition possible previous to operation should ıe aim of the surgeon. Various methods have used, such as frequent catheterization at regular als, the indwelling catheter in the urethra, and pubic puncture. The last is really akin to the tep operation.

The two-step operation, brought into prominence by
Lilienthal, has been popularized by Pilcher, through
the use of the large mushroom or Pezzer catheter. The
primary operation is performed under local anesthesia,
the suprapubic opening being made high enough in the
bladder, as suggested by Squier, to be just below the
bl..der of the peritoneum, and the Pezzer catheter
boist..ed into the bladder through an opening around
slips, h a purse string suture has already been placed.
whic..ht joint is thus made, the wound heals quickly,
A tig.s, necessary, we may wait for a week, a month, or
and, if ..months, until the patient is in good condition. In
three mo..ssio this method is far superior to frequent
my opinion ..up, ..or the indwelling catheter, with its
catheterization .. ..ation of the urethra and ensuing
accompanying traum..fectio
urethritis. ..tion bladder and infection of the
If there has been a dirty ..inage withstand it much better
wound occurs, the patient can .. ag.. to a prostatectomy.
than if it were an added ris..his c..this opening with
Nature, in self-protection, lines ..alth a..ssary to stretch
granulation tissue. As it is only nec.. resis.. is little risk
this opening in the second operation, the..the bla.. of the
of infection in this tissue during remova..stone..
prostate. ..vel

The patient may now receive cabinet baths, bo.. washes, and whatever attention is necessary to care for his vascular system or other complications. It is highly important that patients should sleep at night, and by this method they seem to thrive through their ability to make up for previous loss of sleep.

The cystitis, which is usually present, may now be treated by silver nitrate lavage two or three times daily. The rapidity with which severe cystitis will improve under this treatment is surprising, and a patient who has been septic from absorption of toxic material will yield most gratifying response in increased appetite and general well-being.

In patients who have never been catheterized and have a sterile urine, we have found that with the greatest care infection soon follows. A number of cases have been reported in which fatal results followed the first catheterization. It is this class of cases with the chronically distended bladder, and urine of low specific gravity, and where no great discomfort is complained of, that is most dangerous. Cabot claims that if an immunizing dose of colon vaccine be administered no infection follows. If this proves to be true, it will mark a great advance in the care of these cases.

Now that the patient has been given the preoperative care suggested, how are we to know when he is fit for the second operation? The best answer is had by looking at the general picture. Functional tests, which have been low at first, have been increased. The appetite is better, the urine output has improved and become nearly normal, and either a polyuria has been reduced or a scanty urine increased. As the function increases, the patient usually looks better. I myself rely a great deal on the phenolsulphonephthalein test; but reliance should not be placed on these tests alone, because I have operated successfully on a number of patients when the test remained low. It is most assuring, however, if the test improves and appears within normal limits.

During the period of preparation the patient usually is occupied during the morning with cabinet baths, etc., and is up and around during the afternoon, and sleeps well at night. These patients show a marked change after a week's care. They are being trained for a fight, and the more thorough the training, the greater the

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ad before the Section on Genito-Urinary Diseases at the Sixty-ı Annual Session of the American Medical Association, Detroit, 1916.

resistance in the final combat. When they are prepared for the second operation, the most important part of the operation is over.

The second operation is performed under general anesthesia, and the time consumed is very short. The opening is usually stretched to admit two fingers, and the prostate shelled out in four or five minutes. The shock from the anesthetic is almost nil. Probably as many patients have died from hemorrhage, which has been called shock, as from any other cause. Hemorrhage can be obviated in various ways. First, and most important, keep to the line of cleavage. Second, after flushing out with hot water, by the use of the Hagner bag, the hemorrhage may be controlled by pressure. Third, the cavity may be packed with a long strip of gauze, the end being brought out through the drainage tube, or an indwelling catheter may be left in the urethra for drainage and packing around the catheter. Fourth, sewing up the edges of the torn bladder wall. The latter procedure, which has been attempted by various operators and has been more time consuming than the operation itself, has been much simplified by the adoption of an ingenious retractor by Dr. Danforth of the Mayo Clinic. The retractor is easily inserted in a small suprapubic opening and a running suture readily taken where the bladder wall has been torn in removing the prostate. This usually controls the greater share of the bleeding.

The drainage tube should be of sufficient size so that it cannot be plugged by a clot. I prefer the Marion because of its stiff wall, and also the small tube attached, which can be used for irrigation. In closing the wound, figure of 8 sutures of silkworm gut should be used, leaving the ends of the sutures long next to the drainage tube. The less irrigation and the least disturbance of the bladder following the operation the better. If left alone a clot will soon form. When continual irrigation was used, we did not realize just how much bleeding there was, and by our irrigation we inhibited just what we wanted to take place.

If Hagner's bag has been used, it is better to wait forty-eight hours before removal. If packing has been used and the end brought out through the Marion tube, we may begin to remove the packing at the end of twenty-four hours, pulling out that part which is loose, and repeating about every four hours until all comes away. On the third day, as a rule, the urine is clear, or but slightly tinged. The large Marion tube may then be removed and a large size Pezzer catheter inserted. The ends of the figure 8 sutures which were left long may now be tightened up, and the wound strapped with adhesive plaster to give it support. In another twenty-four hours the bladder will have closed sufficiently tight around the tube so that the patient is dry, can get out of bed and can move around quite comfortably.

Patients should sit up in bed on the third day and be out in a chair for an hour or so on the fourth. Men of advanced age do not do well if confined to bed, and should be stimulated to help themselves by getting out of bed early.

At this time a cork may be inserted in the Pezzer catheter and the patient told to void naturally, but he must not try to distend his bladder. The Pezzer is left in the bladder until the wound is solid, usually at the end of two weeks. The tube is then removed and the fistula heals in a few days. The healing can be aided at this time by inserting an indwelling catheter, so that the bladder will not be distended.

The comfort of a patient who is kept dry following operation is incomparable with the former method of letting the suprapubic wound fill up voluntarily. Even if the dressing were changed every two hours, the patient lay in a wet bed most of the time, and the odor surrounding the patient was most offensive.

From a financial point of view, the saving of a dollar a day for dressings is important to many patients, to say nothing of the comfort.

The urine should be watched for marked alkalinity. Acid sodium phosphate or lactic acid bacilli will clear up an alkaline urine, and this would tend to improve a cystitis and prevent formation of phosphates about the wound. It will also lessen the tendency of a complicated epididymitis, which is a frequent occurrence.

To protect the skin from an irritating urine and also to stimulate wound healing, some oily preparation should be used. Equal parts of balsam of copaiba and oleum ricini are very satisfactory. As the suprapubic wound closes, the patient frequently has a rise of temperature, often reaching 104, for twenty-four or forty-eight hours. This condition usually cares for itself without any specific treatment.

The Murphy drip should not be used, because following the trauma of removing the prostate the lower bowel is very sensitive, and the patient has more or less desire to strain and will expel any fluid.

Whiteside[1] reports two cases of rectal fistula following passage of the rectal tube and urethral catheter; also two cases of fatal hemorrhage caused by passing the rectal tube a day or two after suprapubic prostatectomy. These reports emphasize the fact that instrumentation of the lower bowel following prostatectomy is contraindicated.

Diverticula are frequently overlooked before operation because of the difficulty of cystoscopy. Following the operation they may be the cause of hemorrhage because of reducing the pressure in the sac. This may not be recognized until the wound heals, and the patient continues to have residual urine or cystitis that does not clear up. If silver iodid or thorium is injected into the bladder, the patient lying on his back and a roentgenogram taken, it will save much explanation afterward. If a diverticulum is recognized before operation, it is not wise to attempt removal of both diverticulum and prostate at the same time. If the diverticulum is small it may not give any trouble afterward, but if large it should be taken care of after the patient has recovered from the prostatic operation.

Hiccups are a most serious complication. If occurring before operation, they should be a warning of low renal function. They usually appear in from twenty-four hours to a week following operation. They do not occur so frequently following the two step operation as after the one step operation. Being of renal origin, all nourishment should be stopped and every effort made to increase diuresis.

Femoral thrombosis, although a rather unusual complication, is caused by keeping the limbs quiet, permitting the deposit of fibrin at this point. Aschoff suggests, as a prophylactic measure, massage of the legs daily, or having the patient flex and extend the legs for a period each day while in bed.

In the postoperative care of prostatic cases, as in all surgery, it is important and profitable that the surgeon give his personal attention to all details unless, of course, competent nurses can be directed or are experienced in such cases. The surgeon will gain by his personal attention to after-care, because he may early discover any alarming conditions and avoid serious consequences, and he will also derive from his experience in one case points which may prove valuable in subsequent cases.

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[1] Whiteside, G. S.: Prostatectomy Mistakes and Failures, The Journal A. M. A., Oct. 2, 1915, p. 1163.

CONCLUSIONS

It has been my endeavor to emphasize:

The importance of preoperative care and diagnosis.

The advantage of the two step operation because it causes less shock to the patient.

The use of the Hagner bag or packing to control hemorrhage.

The use of drainings which keep the patient dry and also permit them to be out of bed while convalescing.

The fact that instrumentation of the lower bowel following operation is contraindicated.

The importance of personal attention to details of postoperative care.

Electric Building.

THE POSTOPERATIVE AND CONVALESCENT PERIOD OF PROSTATECTOMY *

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For some years past, the importance of preoperative reparation of a patient to be subjected to prostatecmy has been well recognized. Few surgeons at presnt will operate until the functional capacity of the idneys has been tested, and if found markedly defiient, attempt has been made to stimulate renal excreon to at least an approximation of the normal.

About a year ago, I became interested in the research ork of Myers and Fine on the chemistry of the blood n diabetes and nephritis; and having the opportunity o have blood examinations of my patients carried out y these men, I believe that I have been able to avail myself of certain laboratory determinations which ave been of material aid in preventing postoperative mplications.

Many of the patients requiring prostatectomy are ndividuals who present a well defined degree of ephritis. A few have diabetes. The diabetes may ary from a simple glycosuria without acetone or diatic acid to the more marked cases with a variable egree of acidosis.

Diabetes and nephritis are accompanied by characeristic alteration in the concentration of one or more lood constituents.

In diabetes the sugar concentration of the blood is sually about 0.2 per cent. and may reach as high as .8 per cent., and the chemical change in the blood is nfined principally to the sugar concentration. Normally the sugar concentration varies between 0.09 and .12 per cent. It follows, then, that a knowledge of he concentration of blood sugar is very often a great id in interpreting the fluctuations in the glycosuria hich may be attributed to renal complications. Primarily we are concerned with the hyperglycemia and ot with the glycosuria.

We have operated on a number of patients who showed simply a glycosuria but without a hyperglycemia, and have had no trouble in the postoperative convalescence. Again we have been able, by means of blood chemistry, to anticipate certain of the serious complications of diabetes. In a patient presenting a diminishing glycosuria with an increasing hyperglycemia, we have suspected that the threshold of renal retention for sugar has been raised. This not infrequently occurs when chronic kidney disease is associated with a diabetes. The determination of a diminishing glycosuria with a high blood sugar has enabled us to treat the case accurately and adequately before operation, and we feel sure has obviated complications that would have arisen had we not availed ourselves of these scientific determinations.

Previous to taking up the study of blood chemistry in its relation to operative risk, we made it a rule to test out the functional capacity of the kidneys, and have been impressed with the prognostic value that such determination gave us. There are, however, a class of cases in which the ordinarily functional test of renal capacity is fallacious, and we have found that the estimation of the urea, uric acid and creatinin retention has been a much safer guide as to operability. Occasionally a patient who has responded in an adequate degree to the phenolsulphonephthalein test, and would seem to indicate a condition that would be operatively safe, has been operated on and ended up in an acute suppression of urine and death. This has been particularly true of the type of uremic nephritis. Neubauer, Folin, Denis, Myers and Fine have shown that in uremic nephritis concentration of uric acid and creatinin are far in excess of those observed in any other condition. In fact, the uric acid exceeds the concentration observed in gout and lead poisoning, and may rise above 15 mg., while the creatinin is commonly from 5 to 15 mg., and may give as high as 34 mg. per hundred c.c. of blood. This degree of creatinin retention is confined to the uremic type of nephritis.

If one considers that the ratio of creatinin which is formed in the body in health and in disease is practically a constant quantity, and since creatinin is most readily eliminated by the kidney, it is found under normal conditions only in small amounts in the normal blood, from 1 to 2 mg. per hundred c.c. It follows, then, that the estimation of creatinin is of immense value in the prognostic value in this type of case.

It would appear that the permeability of the kidney in nephritic states is lowered and becomes evident in the blood: first, by an increase in the uric acid, second, by an increase in the urea, and lastly by creatinin; and therefore a case that has presented a creatinin retention of from 4 to 15 mg. per hundred c.c. has been a case that has almost invariably developed marked uremic symptoms.

The determination of urea, uric acid and creatinin retention indexes has been a matter of great usefulness in the way of indicating adequate preoperative treatment and thereby preventing the development of some of the major urinary complications after prostatectomy.

I would refer those interested in this phase of the subject to the recent papers of Myers and Fine.[1]

Among a number of factors making for success in prostatectomy, I doubt if I put it too strongly when I

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* Read before the Section on Genito-Urinary Diseases at the Sixty-eventh Annual Session of the American Medical Association, Detroit, une, 1916.

[1] Myers and Fine: Chemical Conditions of the Blood in Health and Disease.

say that an experienced woman nurse is a prime essential, to the selection of whom considerable thought should be given, because in addition to surgical nursing ability, much tact is required in handling these old men and in keeping them interested, bright and cheerful. The patient who is tired out and no longer willing to try to live and wishes to lie down and sleep may easily go into his long sleep. On the other hand, there is the type of patient mentally too alert, too alive to his surroundings — watching and worrying about every little attention shown the irrigations, the dressings, each glance at his tongue or feel of his pulse. He, too, is on the border. Where the first case needs mental and physical stimulation, the second requires sedative and the quieting influences. A proper personality in the nurse will go a long way toward aiding the surgeon in the management of these different types.

I believe that the day has passed when the nursing of prostatic patients should be in the hands of male nurses, or as obtains in many hospitals, relegated to venerable women whose nursing training dates back to that dark period of hospital management when every urologic case was looked at askance, and considered the logical outcome of venereal disease and therefore a condition apart from other surgical cases. In my early prostatic experience I had the utmost difficulty in getting women of high type to nurse my prostatic patients. They had been taught to spurn them and rather considered it beneath the dignity of their profession to take care of a "G.-U." case. After considerable urging, I enlisted the interest of a number of high minded, able women nurses in making a specialty of the nursing of prostatics. Many since have joined their ranks, until at present, in our hospital, there is no such thing as discrimination against these patients, and we have produced a set of able urologic nurses.

Taking up in more or less detail some of the postoperative measures, it has been our treatment not to irrigate the bladder for at least twenty-four hours immediately following the operation. The reason for this is that nature's best method of stopping hemorrhage is to allow the blood to clot. Therefore, disturb the clot as little as possible, since all irrigations tending to remove the clot will only renew the hemorrhage. On the same principle all methods of suction or aspiration to keep the bladder empty are to be considered unwise.

It has been the practice to suture the bladder accurately but loosely, so that in a large number of cases fully one half of the urinary outflow will be discharged alongside of the tube and on the dressings during the first twenty-four hours or so; but as soon as repair of the bladder incision commences, leakage becomes scanty. The dressings are changed as often as necessary to keep the patient dry and comfortable.

Water by mouth is administered in small amounts as soon as the postanesthetic nausea has subsided. Hot water in small amounts has, in our hands, been found to be better borne than ice or cold water. Thirty-six hours or so after operation a brisk cathartic is administered, preferably castor oil. If the bowels do not act freely within six hours, a high colon saline irrigation is given. The patient is encouraged as far as possible to sleep and rest. After the first dose of morphin (¼ grain) is given; another may be administered if necessary, but the continued use of morphin is to be condemned. Morphin, as is well known, decreases all secretion except sweat, and in prostatics recovery is most dependent on the ability of the kidneys to keep secreting.

The critical period seems to be somewhere within the twenty-four hour and the seventy-two hour period. It is here that a persistent nausea or beginning singultus may be the first sign of uremia. Prompt measures will often check its progress. It is at a juncture such as this that the data derived from a chemical blood examination is of invaluable aid to demonstrate the degree of retention products.

The early use of the stomach tube with copious lavage and the administration of castor oil through the tube after the lavage and a little later a high hot colon irrigation will often be all that is required to establish normal convalescence. After a good washing out of the gastro-intestinal tract, a restoration of the proctoclysis, and especially if there is any tendency to arrhythmia of the heart, the administering of the fresh infusion of digitalis in the drip will at once steady the circulation and avert disaster. It is in this stage that early and prompt treatment is the supreme indication.

Within twenty-four hours, bladder irrigations with warm boric acid solution, 5 per cent., are instituted, the number of daily irrigations varying as to the condition of the bladder. In cases of old purulent cystitis the bladder is irrigated at least five or six times a day. This can be done without disturbing the patient at all.

It has been our custom to drain the suprapubic space of Retzius with a cigaret drain. This is removed in from forty-eight to seventy-two hours after operation, again depending on the condition of the bladder.

The suprapubic bladder tube is removed usually in from four to six days. This we think should depend on three factors: 1. The condition of the bladder as to surgical cleanliness — in a clean bladder early, in a suppurative condition late. 2. The amount of ooze and clots. The tube should be kept in until all clots have been removed and all ooze has ceased. 3. The tube should be kept in until there is a well lined granulation tissue fistula formed, so that on removal of the tube there will be no urinary infiltration laterally along the facial spaces and planes.

The patient is early returned to a good nourishing diet, fluids are forced, and these can be taken in any form, as Vichy water, milk, etc. Hexamethylenamin, 10 grains, is administered four times a day, with the addition of sodium acid phosphate or sodium benzoate, 5 grains, four times a day if the urine is alkaline or any tendency to phosphaturia is present. The scrotum should be well supported, and for this the old adhesive bridge is by far the best apparatus.

After removal of the tube the bladder is washed with a fine catheter inserted down into the suprapubic wound, several times daily.

One prominent urologic surgeon has commented on the number of epididymitis cases occurring among his prostatectomies — from 30 to 40 per cent. — and, in looking about for a cause, finally attributed this high percentage to the practice of inserting a retention catheter at the time of operation in an attempt to expedite wound healing. It seems best to avoid if possible any instrumentation of the urethra until at least two weeks have elapsed.

To pass a catheter across a bed of fresh granulation tissue with coincident trauma, especially the prostatic bed with the exposed ejaculatory ducts, is apt to be productive of more harm than good. Especially should the passage of a sound be advised against, at least until all chances of dislodging any clots in the plexus veins about the neck of the bladder has passed. Septic emboli have been the cause of quick death following stretching of the neck of the bladder in cases in which operation has recently been performed, the sounds having been passed because of an erroneous idea that a stricture might be forming.

After a sufficient time has elapsed, from two to three weeks, the passage of a catheter for irrigation purposes is to be recommended.

Patients may safely be set up in bed in six or seven days and allowed out of bed in from ten to twelve days; but, as these are old men, they should be treated as such, and getting an old man up and out of bed a few days after a major operation is poor policy. It is like "whipping a tired horse." Keep him interested and alive mentally, and make his surroundings pleasant, but by no means start him doing stunts that might not be even appropriate for a person thirty or forty years younger.

The suprapubic fistula heals usually in from two to four weeks, on the average, three weeks. In those that remain open longer it may be necessary to irrigate more often through the urethra. In an exceptional case it may be necessary to insert a retention catheter and drain the bladder so that the fistula will heal.

In those cases which have a tendency to deposit phosphates medication should be given to render the urine acid, and the patient should be dieted to lower the phosphate intake. The insertion of Bulgarian or lactic acid bacilli through the fistula in a large number of cases will quickly stop the incrustations. Sometimes if there is a small bit of slough of clot in the bladder, this may form the basis of an incrustation, nd its removal by lithotrite may become necessary.

When the patient starts voiding he should be encourged to empty the bladder frequently. It seems good udgment, in those patients who before operation had arge, stretched, overdistended, trabeculated bladders, allow the suprapubic fistula to remain open longer an routine, so as to restore by rest the lost bladder one. Medication has no effect in this type of case.

The final word will never be said on just what contitutes an ideal routine for postoperative prostatic eatment.

More difficult problems come up in the management f urologic cases than perhaps in any other branch f surgery.

The resources of the surgeon are often taxed to the tmost; but in no other branch of surgery does a case ll managed, and brought to a final successful funconal restoration, produce a more gratifying result to th patient and surgeon.

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ABSTRACT OF DISCUSSION

PAPERS OF DRS. MAC GOWAN, YOUNG AND FRONTZ, GARDNER, CRENSHAW AND SQUIER

R. Paul M. Pilcher, Brooklyn: I do not agree that a male rse compares with a female nurse in these cases if the latter trained properly. Male nurses do not, as a rule, take as ch care of their patients as female nurses do. If I have per cent. phenolsulphonephthalein on one side of a mem- and simply water on the other there is going to be an osis between the two sides. That is exactly what happens en we have a hypertrophied prostate with a retention of urine and dilatation of the kidney pelvis. A certain amount of phenolsulphonephthalein will pass through that membrane without any function of the kidney at all. The first thing we have to do is to relieve the retention of urine, not to take the prostate out. You can do it by catheterizing or by doing a suprapubic cystostomy. The reason we do a cystostomy is because the kidney is already embarrassed and we do not want to increase that embarrassment. Every time you pass a catheter into the urethra, especially if you injure the urethra, you increase the embarrassment of the kidney. We recommend a suprapubic cystostomy early so that we can dissect up these tissues and choose our point of opening the bladder. Having put our button drainage tube in place we can sew up all of the tissues around that wound, and all we have to deal with then is a sinus from the skin into the bladder. There is no danger of infecting the prevesical space; it is absolutely unnecessary to drain the prevesical space even with a foul cystitis. Primary union will occur in the great majority of cases. With a button drainage tube in the bladder, and the wound sewed up the patient is perfectly dry, and he should remain dry following that operation for nine or ten days.

I have seen recently a number of methods of keeping the bladder empty. Suturing a Pezzer catheter into the wound and draining the bladder keeps it perfectly dry. It is better than any of the old cumbersome methods in which you attach a hose to a faucet and keep draining the bladder. Another point of importance is washing out the bladder after these operations. That, in our opinion, is absolutely unnecessary, and the men who were the greatest exponents of washing the bladder after prostatectomy have given it up. Some one said never to give morphin. I think that is one of the things to give. It conserves the strength, and I have never seen any disadvantage from it, and we should save our patients from as much pain as possible after operation. We do not believe in suturing of the primary suprapubic opening because we do not think it is necessary in this type of operation. After the primary operation it is possible by dilating with the fingers to take out the prostate without any other instrument.

Dr. A. J. Crowell, Charlotte, N. C.: I believe if we will let the bladder drain itself naturally and normally we will not have complications. I favor the perineal operation. I do not bother about draining the bladder following a perineal prostatectomy; it drains itself. The preparatory treatment is the most important work in our prostatic cases. Practically we know that phenolsulphonephthalein is a fine index as to the kidney function, and we rely on it and the blood urea almost entirely as a guide as to when we should and when we should not operate in our cases of hypertrophy of the prostate. If we will prepare our patients for operation, whether we do the suprapubic or the perineal operation, we can usually get excellent results. We have started out with the idea of doing 100 without a fatality. We have reached the thirty-six mark since a fatality and expect to reach 100 with a very low fatality, if any at all. We also expect to do practically all by the perineal route. We send these patients home in ten days to two weeks after operation with the wound closed or practically closed and of the 273 to 300 cases I have operated in there is not a single fistula left today.

Dr. William F. Braasch, Rochester, Minn.: In regard to the type of operation, it really does not make much difference whether the perineal or the suprapubic is used, because both routes have been demonstrated to be entirely feasible. It is largely a matter of ease of technic to the operator and with the functional after-results. As to drainage, Freyer's original method evidently has been retained, namely, a large single tube drainage. Every one seems to recognize the fact that a single large tube without irrigation is the standard method of treatment. As to the treatment of postoperative hemorrhage: The most interesting method suggested by Cabot of sewing up the capsule was discarded to some extent, but more recently it has again been picked up and used in a modified form, as suggested by Judd, making a wide exposure, and picking up the large blood vessels. It only takes a few minutes longer and requires no packing. The method suggested by Dr. Gardner and employed in the perineal route, namely, using a gauze packing, has its disadvantages. Dr. Judd was able to sew up the bladder without any drainage, without taking any care of the hemorrhage, and in a series of forty or fifty cases had good results, that is, primary union. But, after this large series of cases, we had two or three unfortunate experiences, so that, in common with the experience of others, we were forced to give up this method. As to the prevention of infection: Using the Freyer tube without any precautions for preventing infection of the prevesical space was found to be wrong. Infection resulted, and it did not remain in that area. Unfortunately it went into the urinary tract, causing pyelonephritis and other complications. So that we now recognize the fact that the prevesical space must be guarded carefully by draining, or as Dr. Pilcher suggested, carefully closed. Unfortunately the method Dr. Pilcher has suggested is not always theoretically very good; it does not always work out well; there is frequently more or less drainage around the tube, in spite of the precautions taken in a certain percentage of cases, and the resulting infection is unfortunate. I wish to make a plea for a standardization of the postoperative care following prostatectomy.

DR. CHARLES E. BARNETT, Fort Wayne, Ind.: One of the little things that impressed me was the fact that the carcinomatous prostatic will not keep a catheter in the bladder, consequently if the patient shows trouble from catheter irritation, you suspect carcinoma. I am in favor of the suprapubic prostatectomy, but the question of cancer has been in my mind ever since I changed from the perineal operation; that is to say, the cancer cells are found in the posterior lobes most frequently, and after you have removed the hypertrophic portion of the prostate you have not removed the posterior lobe, so that if you have removed the cancer it must be in the lateral lobes or in the so-called middle lobe. The hazard of the possibility of carcinoma occurring in the nonremoved posterior lobe still confronts you. I consider the use of morphin bad from the standpoint that you have an unnatural loosening up of the renal secretion, which is followed by a negative phase simulating anuria; its toxemia produces a great tendency to gas distention of the bowels, which is quite a menace to postoperative recovery. You will seldom find that morphin is indicated in any case. I think that morphin is always poison to everybody. A large incision is in the majority of cases unnecessary. Make the incision as small as you can in order to get at the prostate and remove it. All that you need is room enough to get your finger in and get the prostate out and insert the drainage tubes. The shock to the patient is the greatest factor to combat. I believe that local anesthesia will be used more and more all the time, and, as Dr. Pilcher said, the two-stage operation, whereby local anesthesia can be used for the suprapubic drainage of the bladder. In this way you get drainage without epididymitis. An epididymitis adds much to the pathology, and you so frequently have an epididymitis by having the catheter pressure force infection up from the sinus pocularis through the ejaculatory ducts and vasi to the epididymi. Consequently, suprapubic drainage is indicated, and it is indicated primarily before the prostatectomy is done in order to get the patient in shape for prostatectomy.

DR. MARTIN KROTOSZYNER, San Francisco: As regards the preoperative functional study of old prostatics, I believe its application generally to be too one sided, as at the majority of clinics invariably only one test, and preferably the phenolsulphonephthalein test, is applied, which undoubtedly is overestimated in its value. Aside from the fact that, not infrequently, its interpretation is frustrated, as for instance in severe hematuria, it is often performed by inexperienced interns in a flimsy manner, thus often reducing its reliability. In doubtful cases, furthermore, one test does not suffice to give the desired evidence, and it ought always to be correlated and critically compared with at least one other test. Blood urea estimation, done simultaneously with the phenolsulphonephthalein test, is apt to substantiate the functional diagnosis. The blood urea test, though, having too wide a range of normal values, is prognostically not as valuable as blood cryoscopy, which, according to my experience, gives a much deeper insight into functional capacity in these cases than any other test. For bladder irrigation, prior to operation, I prefer silver nitrate, beginning with very weak solutions and gradually increasing in concentration. By these means even highly infected bladders can be cleared up very quickly. As regards the length of preparatory treatment, no time limit should be placed, and ever case should be treated individually. I, like Dr. Pilcher, feel that we have no right to take out the prostate of an old man unless we are reasonably convinced that he will be equal to the shock of the procedure, a knowledge that can only be gained on the basis of ample preliminary treatment. With reference to those patients who come to us with absolutely clear urine, requiring catheterization, I am of the opinion that this procedure will often result in infection, in spite of most stringent antiseptic measures. I recall the case of a diabetic of 59, who came to the hospital with retention due to an enlarged prostate. Although in this case catheterization was done under the most rigid antiseptic precautions, using rubber gloves and in a clean dressing room, the patient died within two weeks after entering the hospital from acute ascending infection of the kidneys. I have seen several similar cases, and at present I generally refrain from catheterizing these patients at my office.

DR. WILLIAM E. LOWER, Cleveland: The reduction of the mortality rate in prostatic operations has been due largely to better preoperative and postoperative care. The operation is becoming more and more nearly standardized. We strive for certain results in prostatic as well as in other operations; first, a low mortality; second, the relief of the patient from the conditions for which he is operated; third, the minimum of postoperative complications. As far as the operation is concerned, a low mortality rate is brought about by more careful handling of the patient on the operating table. We must conserve the small amount of resistance these old people have. Whether the operation should be suprapubic or perineal depends very largely on the individual habit of the operator. Personally, I believe better results follow the suprapubic operation. The postoperative complications—urinary incontinence, continuance of residual urine, and persistent fistulas—all very annoying to the patient, are reduced to a minimum by the use of the suprapubic route.

The question of the treatment of carcinoma of the prostate is always an interesting one. After considerable experience, I have adopted the following procedure: In a case where there is great obstruction to urination, I operate suprapubically and remove such a part of the obstruction as I am able to get out. This relieves the patient of urinary symptoms, and I have seen many of these patients live for two or three years with no great amount of vesical disturbance. On the other hand, if there is no great amount of urinary obstruction, operation is not attempted in these old men, especially where the malignancy of the gland is evidenced by a hard, nodular and fixed prostate with pain in back and thighs, for the malignant growth cannot, with safety, be removed completely, consequently the patient is not aided by undergoing a mutilating operation. If the malignancy is recognized early in the younger men, a very radical operation should be done. I do not believe that in any form of prostatic obstruction prostatectomy should be a primary operation.

DR. DAVID W. MACKENZIE, New York: I wish to report the case of a young man who came in complaining of pain in the back, shooting down both legs. Rectal examination revealed a hard, nodular prostate. Cystoscopy showed a normal bladder. Catheterization of the ureters showed normal findings from both kidneys. While the instrument was still in his urethra, rectal examination revealed a posterior lobe thickened, hard and nodular. The man was 28 years old. We explained matters to him and he decided he wanted it removed. We did a radical removal of the prostate, neck of the bladder and seminal vesicles. The operation went all right, the prostate not being particularly adherent. We made a section of the specimen in the operating room. There were numerous hard, somewhat cheesy spots in the posterior lobe. There was nothing that we could see in the lateral lobes macroscopically. The specimen was sent to the laboratory, and proved to be tuberculosis of the posterior lobe of the prostate. Nothing could be found in the epididymis on either side, and nothing in the seminal vesicles. Since then, on numerous examinations of the urine, we have not been able to find tubercle bacilli. We injected two guinea-pigs from a bladder specimen with a negative result.

Dr. Edwin Beer, New York: Prostatic carcinoma, as I see it, presents itself under a recognizable and an unrecognizable guise. The second group of cases are proved to be carcinoma by the microscopist after an enucleation of what was supposed to be a simple adenoma. When it comes to the type in which you make a preoperative diagnosis and there is no obstruction, leave those cases alone. Drs. Young and Albarran and Proust have come out for a perineal operation. Others have emphasized the fact that to get a cure in any proportion of cases it might be better to start from above, clean out the pelvic connective tissue, lymphatics, the bladder, prostate and seminal vesicles and implant the ureters. When we have a safe method of implanting the ureters into the bowel, that operation will be done much more frequently than at present. Personally, I favor the operation from above, or combined, so that the bladder comes out with the prostate, seminal vesicles and the terminal ends of the ureters. The important thing is the determination of the functional capacity of the kidneys; the heart is secondary.

Ether is a poor anesthetic in these cases. The operation is preferably done in two stages: the first step should be done under local anesthesia, and the enucleation later under gas-oxygen anesthesia. Hemorrhage is of slight danger. I have had very few cases that caused alarm. When it comes to the postoperative care, I disagree with Dr. Braasch that you need extensive drainage; a small wick of gauze above and below the tube will protect the prevesical space adequately. I do not know how many cases I have drained that way, and I have never seen a phlegmon of the prevesical space. Forty-eight hours after a prostatectomy it is my rule to withdraw the gauze which has been buried in the prostatic bed, pulling out the gauze by the string, pull out the tube, wash the bladder out with hot saline, and then, either at once or twenty-four hours afterward, a small hard rubber cap is glued onto the small suprapubic opening and is attached with the mass of adhesive plaster. That is dissolved in benzine which is allowed to evaporate after thorough solution of the mass. It is smeared onto the lip of the cap and the cap is glued onto the suprapubic opening. All the urine runs out through two tubes in the cap and the patients usually keep dry. In dressing the wound the top of the cap can be unscrewed so that you can see what is happening at the wound, and if you wish to irrigate you can do so. As far as morphin is concerned, I disagree with Dr. Pilcher. I think it is a bad practice to use morphin practically, as he said, ad libitum. I think he did not mean to make it as emphatic as that. I believe the pain can be controlled by suppositories of opium and belladonna.

Dr. John T. Geraghty, Baltimore: I want to take exception to what Dr. Pilcher said about kidney function as revealed by the phenolsulphonephthalein test before and after relief of back pressure. I do not think we can reduce the kidney to a question of osmosis and diffusion. No substances go through it by osmosis and diffusion, except water. It has been shown definitely that phenolsulphonephthalein does not go through in that manner, that it represents true secretory activity, that it is picked up by the renal cells and excreted. Therefore, the presence of a big hydronephrosis could not have the influence Dr. Pilcher states. The explanation of the high phenolsulphonephthalein output is that it is due to an ascending infection or development of an acute nephritis. You do not get that grade of hydronephrosis in prostatic obstructions; it is very rare. Even in the very marked cases the grade of hydronephrosis is comparatively slight, nothing to be compared to what is produced by a slight obstruction in the ureter itself.

As regards cancer, we do not make the statement that cancer occurs in the posterior lobe in all cases, but that in cases of hypertrophy the cancer occurs, as a rule, in the posterior lobe. We have had only one exception to that. In every other instance we have found it in the posterior lobe. Where a cancer occurs in a prostate not previously the seat of hypertrophy the cancer can occur in any part of the prostate. The only reason it occurs in the posterior lobe when associated with a hypertrophy is that hypertrophy does not degenerate into cancer. I do not quite agree with Dr. Beer that in these cases it will be possible for us to do such an operation as the Wertheim operation. It practically means the taking away of the prostate, the seminal vesicles and the whole bladder, transplanting the ureters into the bowel or doing a double nephrostomy and cleaning out the glands. Those operations will never be feasible in elderly men. Most carcinomas come at the age when we get prostatic hypertrophy—over 60—and the mortality would be entirely against the proposition. In the second place, we should not forget that these patients live for many years with carcinoma of the prostate. Carcinoma of the prostate is not a malignant type in the ordinary sense. Many of these patients live from four to seven years with comparative comfort. Some of the patients we see who are inoperable have had it for several years and live for three or four years. For that reason, in elderly men I do not think we are justified in doing these operations that involve such great risks.

Dr. A. W. Nelson, Cincinnati: One case came under my care eight months ago. In this instance the gland was enlarged, hard, and irregular in outline. The hardness extended to the seminal vesicles. The patient would not listen to operative suggestions. I suggested radium. At my request Dr. L. J. Ranshoff gave him two treatments of radium, with no particular improvement. After having the patient under my care, irregularly, for about two months, I lost track of him. Later on I heard that he submitted to an operation, which was followed by death.

Dr. Granville MacGowan, Los Angeles: This particular series of cases interested me much. Doing prostatic surgery since 1893 (when I did my first prostatectomy), I have seen a good bit of cancer of the prostate. I have seen cancer of the prostate in men as young as 34 or 35 years of age, but I find those people are much more interested in the preservation of the sexual powers than in getting rid of the cancer, and none of them would submit to operation. From November, 1913, to May, 1915, I operated on eight cases of distinct cancer of the prostate. In six, the dysuria had existed six months or less. In six, the rectal examination made over the shaft of a steel instrument in the urethra was negative as to thickening of the posterior lobe, and in five, negative as to cancer. In all, the organ was approached suprapubically for exploration and relief. In Case 2 the origin was in the acini of the right lobe. In Cases 3, 4 and 5 in the superior or anterior lobe, and two of these followed traumatism by a silver catheter. Case 1 had a prostatectomy, was comfortable for a year, but now has dysuria and vertebral metastases. Case 2 had a prostatectomy, was comfortable for a year and now has dysuria and sacral metastases. Case 3 had a channel cut and bit through the prostate, was comfortable for six months but died of metastases in September, 1915. Case 4 had a prostatectomy with perfect results and is alive and comfortable today. Case 5 had a partial prostatectomy and destructive treatment of the remainder with the d'Arsonval current, with perfect results and is alive and comfortable. Case 6 had a prostatectomy in two stages, with destructive treatment of the ragged capsule with the d'Arsonval spark. He is alive, urinates freely but suffers from general mestastases and will die soon. Case 7 had a partial prostatectomy and the destruction of the remaining growths by the d'Arsonval spark, is alive, and so far as can be observed by the cystoscope and urethroscope, perfectly cured. Case 8 had a suprapubic cystotomy for drainage, followed by a punch operation, the latter without merit. He is alive and fairly comfortable with his drainage apparatus. The lesson to be derived from this series is that a large percentage of the cases of cancer of the prostate, recognized before, or at operation, can be much benefited and sometimes, apparently cured, by a conservative prostatectomy, combined by subsequent treatment with the d'Arsonval spark, and that consequently they should not be abandoned as essentially hopeless.

Etiology of Eclampsia.—Eclampsia is still the field of contentious theories of causation and ideas of practice. As far as etiology is concerned we are not one whit wiser than we were ten years ago—or 100 years ago, when humoral pathology was in its prime.—J. B. De Lee.

BLOOD PRESSURE CHANGES INDUCED BY HOT AND COLD APPLICATIONS ON AND WITHIN THE ABDOMEN

FREDERICK S. HAMMETT, Ph.D.
WITH THE ASSISTANCE OF
E. W. TICE, A.B.
AND
E. LARSON, B.S.
LOS ANGELES

In view of the fact that many surgeons are using hot and cold packs for one reason or another, on and within the abdomen either before, during or after abdominal operations, it seemed advisable to determine the effect of these agents on the organism. As changes in blood pressure are conveniently recorded, and as at the same time these changes are an important index of the condition of the patient, we have determined the changes in blood pressure produced by the application of either heat or cold on or within the abdomen.

We obtained the results herein reported when using cats as the subjects of the experimental study. The animals were anesthetized with ether. Records were made of the changes in blood pressure by connecting the carotid artery through a cannula with a mercury manometer so arranged as to trace the pressure variations on a smoked paper attached to a slow moving drum kymograph. Sodium bicarbonate solution of 1.080 specific gravity was used as an intermediary fluid.

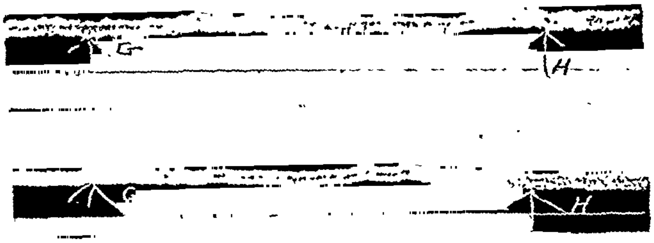

Fig. 1.—Tracing of blood pressure changes induced by cutaneous application of cold: *G*, cold applied; *H*, cold removed.

The application of the heat or cold was effected by passing hot or cold water approximately 25 C. (77 F.) above or below the temperature of the body from reservoirs through rubber tubing to and through a glass coil placed in intimate contact with the region studied.

The coil consisted of five turns of 5 mm. glass tubing, the total area covered being 7 by 6 cm. The coil was so suspended from a bar that the least possible pressure was exerted on the parts to which it was applied. Before the heat or cold was applied, sufficient time was allowed to elapse for the pressure tracing to become constant. The applications were then made for periods of fifteen minutes, then the coil was removed and the pressure curve allowed to return to its former level.

The experiments can be arranged in two groups. In Group A the applications were made on the external abdominal surface, thus giving the effect on blood pressure of heat and cold when externally applied on the abdomen. The hair was closely clipped from the abdomen in order to prevent loss of effective stimulation through dead air spaces in the fur. In Group B the applications were made within the abdomen in order to obtain the effect of heat and cold on blood pressure when used in this manner. The abdomen was opened by a median longitudinal incision and the coil placed within. The cut edges were approximated, and the wound closed by the use of bulldog clamps.

In both groups, control experiments were made by first applying the heat and then the cold and vice versa. The change in sequence produced no significant change in the final result.

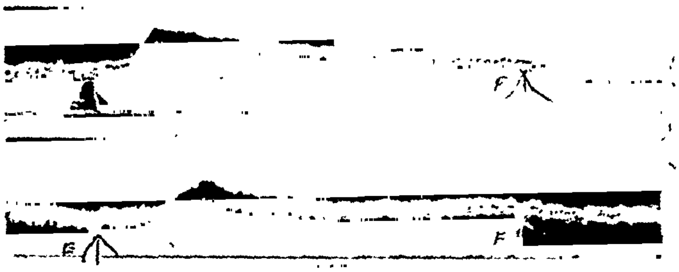

Fig. 2.—Tracing of blood pressure changes induced by cutaneous application of heat: *E*, heat applied; *F*, heat removed.

In a series of thirty-six experiments for which twenty-four cats were used, the application of cold on the external abdominal surface produced but little change in blood pressure, any variation observed being a tendency toward an increase. This is shown in Figure 1.

In a like number of cases the heat invariably produced a rise in blood pressure. This rise lasted as long as the heat was applied and decreased to normal shortly after the stimulus was removed (Fig. 2).

In Group B there were thirty-two experiments for which twenty-six cats were used. When the cold was applied there was produced a sharp fall in blood pressure, recovery from which was slow after the removal of the stimulus (Fig. 3).

As evidenced by Figure 4, the application of heat produced a like change in blood pressure.

We may say that the application of heat to the external abdominal surface produces a rise in blood pressure, while the similar application of cold has but little effect, any change occurring being in the direction of an increase. On the other hand, the application of both heat and cold within the abdomen invariably produces a sharp fall in blood pressure followed by a slow recovery to normal when the stimuli are removed.

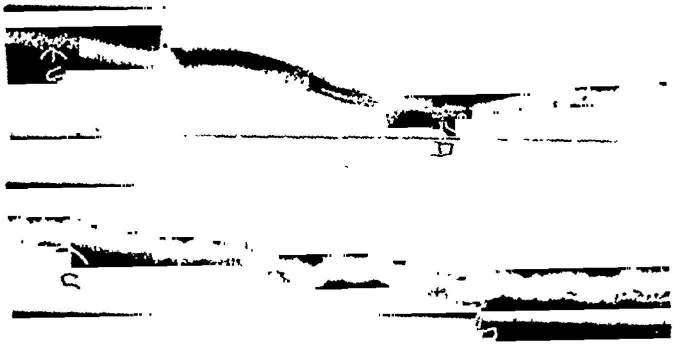

Fig. 3.—Tracing of blood pressure changes induced by cold application within the abdomen: *C*, cold applied; *D*, cold removed.

It is evident that the external application of either heat or cold to the abdominal surface sets into activity the vasoconstrictor mechanism with probable inhibition of the vasodilator mechanism, thus leading to an increase in blood pressure. It must be remembered that these applications are strictly localized, and set into activity the peripheral endings in the splanchnic area, in contradistinction to the work of Müller,[1] in which the external application of heat and cold was general with a general neural stimulation. Of practical importance is the fact that local applications of heat to the splanchnic or abdominal surface during anesthesia will produce a rise in blood pressure which may be able to counteract the fall caused by the anesthetic and thus permit the extension of operative procedure which otherwise might be prohibited through the condition of the patient.

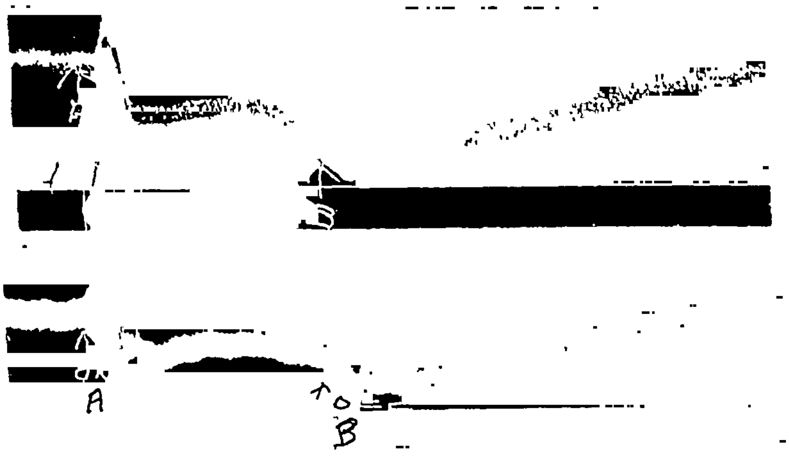

Fig. 4.—Tracing of blood pressure changes induced by heat application within the abdomen: *A*, heat applied; *B*, heat removed.

When we consider the fact that either heat or cold within the abdomen produces a sharp fall in blood pressure, we can offer two general possibilities explanatory of this phenomenon. The effect of these stimuli is to set into activity the vasodilator mechanism. This is evidenced by the fall in blood pressure. According to Barger and Dale,[2] there is present in the intestinal wall a depressor substance, beta-iminazolylethylamin, which Dale and Laidlaw[3] have shown to exert a significant action on the vasomotor nerves leading to depressor effect. Mellanby, Edward and Twort[4] have demonstrated that this substance can be produced by the action of intestinal bacteria on histidin; hence the probability of the observed reaction being the result of hormone liberation is doubtful. The recent work of Burton-Opitz[5] on the effect of stimulation of the splanchnic nerve on blood pressure offers a more plausible explanation, and it is not improbable that the consistent results obtained in these experiments are the result of this stimulation.

However that may be, the fact remains that the application of either heat or cold within the abdomen during ether anesthesia invariably results in a decided drop in blood pressure. The practical significance of these findings is obvious. The cumulative depression occasioned by anesthesia plus that resulting from the use of heat or cold, not even taking into consideration hemorrhage and surgical shock, is obviously not conducive to the best interest of the patient. In the procedure wherein the abdomen is internally packed with ice after certain operations, care should obviously be taken to determine the blood pressure level before the application, inasmuch as a marked fall of blood pressure, which is sure to be occasioned by this measure, might well be an extremely dangerous occurrence.

It might be argued by some who carefully study the curves that the instantaneous or momentary application of heat or cold within the abdomen produces a sharp rise in blood pressure before the onset of the drop, and that this rise might well be beneficial or at least not harmful. This cannot be gainsaid, although we have produced evidence that after repeated momentary applications of heat or cold this rise does not occur, and the fall in blood pressure comes on immediately.

In view of these facts, it is evident that the use of hot or cold packs on or within the abdomen is attended by marked changes in blood pressure, and it is accordingly of importance to follow carefully, so far as possible, during and after operations, the blood pressure changes when these applications are utilized.

516 East Washington Street.

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1. Müller: Deutsch. Arch. f. klin. Med., 1902, p. 74.
2. Barger and Dale: Jour. Physiol., 1911, **41**, 499.
3. Dale and Laidlaw: Jour. Physiol., 1911, **43**, 182.
4. Mellanby, Edward and Twort: Jour. Physiol., 1912, **45**, 53.
5. Burton-Opitz: Am. Jour. Physiol., 1916, **41**, 103.

CHRONIC MULTIPLE ARTHRITIS DUE TO BACILLUS MUCOSUS *

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About three years ago I[1] reported a case of multiple arthritis due to a Friedländer bacillus (*B. mucosus*). The present case was so similar to the former one that the resemblance was apparent from a casual examination of the hands, which were the parts most affected in both patients. As in the first patient, repeated cultures from the throat yielded many colonies of *B. mucosus*. Isolated in pure culture, the bacillus produced experimental arthritis in all of three rabbits which were inoculated intravenously.

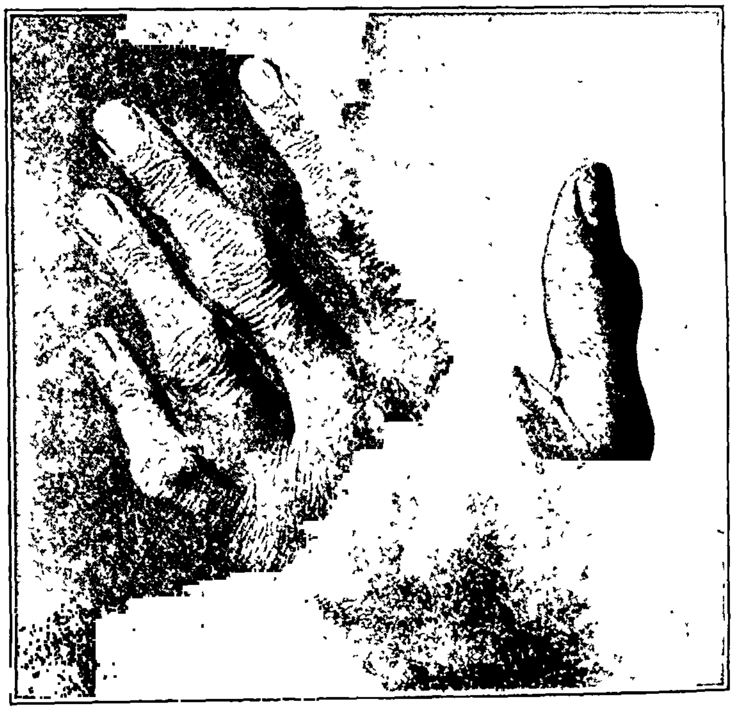

Fig. 1.—Appearance of left hand.

History.—The patient, a Swedish woman, aged 30, has had arthritis for many years. She remembers having had medical treatment for it fifteen years ago, but has had the disease much longer. The arthritis began insidiously and has been progressive. The joints are stiff, especially in the morning. They are somewhat painful, although the pain is never very severe. Using the hands usually makes the joints more limber. Aside from the arthritis, the patient feels "pretty well," except for habitual constipation

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* From the Memorial Institute for Infectious Diseases.

1. Dick, G. F.: Jour. Infect. Dis., 1914, **14**, 176.

The patient has had measles, chickenpox and whooping cough, and occasional attacks of bronchitis. She is married and has two children who are well.

Physical Examination.—The patient is a rather slight, thin woman. There is pyorrhea alveolaris; the tonsils are ragged but not enlarged. The pharynx is pale and covered with mucus. The cervical glands are palpable below the angle of the jaw. The physical examination otherwise is negative except for the hands. The urine is normal, the blood pressure 120. The Wassermann and gonococcus fixation tests are negative.

The appearance of the hands is well shown in the illustrations. The joints are nearly all affected, but the most marked deformity is that of the first interphalangeal joints. These joints are so distended with fluid that the synovial membranes have formed hernias through the joint capsule, resulting in soft fluctuating swellings. There is but little restriction of motion in the joints, no change in the skin covering them, and no muscular atrophy. Roentgenoscopy reveals some absorption and proliferation of bone; but such changes are slight, and the increase in joint fluid is the most striking change present. The fluid aspirated from a joint is very thick and mucoid. It is clear, and no cells are found in smears stained with Wright's stain.

Cultures.—The fluid from the joints yielded sterile cultures on aerobic and anaerobic blood agar slants and in agar shake cultures. A number of throat cultures on ordinary agar slants yielded many colonies of *B. mucosus.* Pure cultures of this bacillus showed the typical gram-negative short, plump bacilli with large capsules. The growth on ordinary mediums was thick, heavy and mucoid, and slightly fluid. The bacillus fermented lactose, dextrose and mannite with gas, coagulated and acidified milk, and did not ferment raffinose or saccharose.

A rabbit injected intravenously with one slant died the following night. The knee joints showed hemorrhages into the synovial membrane. *B. mucosus* was cultivated from the joint fluid.

A second rabbit injected intravenously with one tenth of an agar slant died in about twenty-four hours with findings similar to those of the first rabbit.

A third rabbit was injected intravenously with 0.5 c.c. of a slant of the bacillus suspended in 10 c.c. of broth. Two days later it was again injected with 1 c.c. of a suspension of one agar slant of the bacillus in 10 c.c. of broth. Four days after the second injection the rabbit died. Both knee joints showed the following changes: The synovial membrane was red, the joint fluid was increased in quantity, was turbid, and on microscopic examination showed many leukocytes and many bacilli of the typical *B. mucosus* morphology. The liver contained some small abscesses, which on microscopic examination contained granular detritus, many round cells and a few polymorphonuclear leukocytes. The kidneys showed degenerative changes, and on microscopic examination a cellular exudate into the pelvis made up mostly of polymorphonuclear leukocytes with some round cells.

BACILLI ISOLATED

Sugar	Arthritis 1	Arthritis 2	Pharyngitis	Rhinitis	Pneumonia
Dextrose....	Acid, gas	Acid, gas	Acid, gas	Acid, gas	Acid,gas
Mannite ..	Acid, gas	Acid, gas	Acid	Acid	
Lactose	Acid, gas	Acid, gas			
Litmus milk	Acid, coag.	Acid, coag	....	Acid	Slight acid

Further experiments were not carried out in this case, as the results were the same as those obtained in the former case, in which by prolonged repeated injection of smaller doses of live bacilli a more chronic experimental arthritis was obtained which was an exact reproduction of that found in the patients. In one case of chronic experimental arthritis the joint fluid was sterile twelve days after the last intravenous injection. The histologic changes in this case are described in the previous report.

The bacilli isolated from the two patients belong to the same group of the Perkins classification[2] of *B. mucosus,* while organisms which produced no arthritis in animals fall into other groups. This is illustrated in the accompanying table.

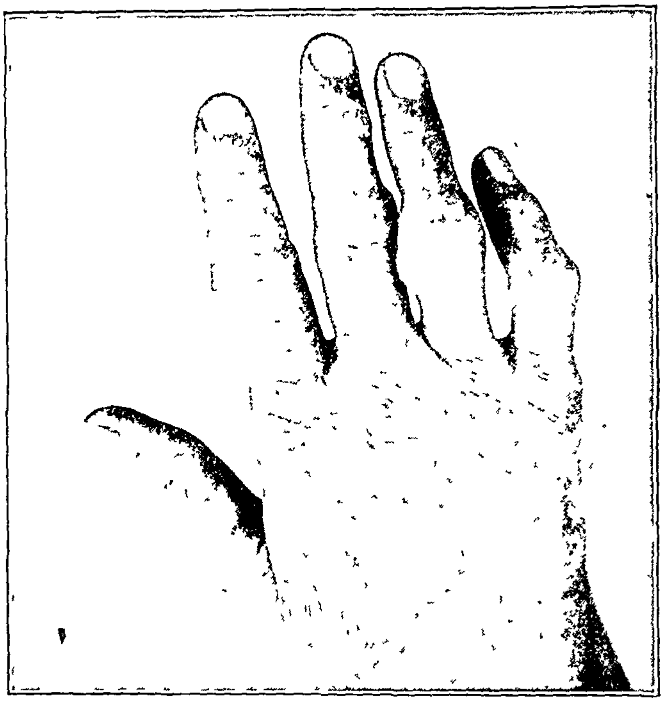
Fig. 2.—Appearance of right hand.

From the pathogenesis of these cases it seemed indicated to rid the throat of the causative organisms by such means as have been developed in the case of diphtheria carriers.

After tonsillectomy and vaccine treatment, the arthritis in the first case was so much improved that the patient was able to do housework without inconvenience. Most of the fluid was absorbed. During the four years that the patient was under observation, the improvement was permanent; but the throat was never entirely free from *B. mucosus* for any length of time.

The patient returned for several courses of vaccine treatment. During the courses the joints gave her no pain and remained painless for periods which varied from a few weeks after the first course to a year following the fourth course of vaccine.

SUMMARY

Two cases of chronic multiple arthritis have been described which resemble each other in every way. From the throats of both these patients there were isolated bacilli of the same group (1) of Perkins' classification of *B. mucosus.*

On intravenous injections into rabbits, the bacilli constantly produced an experimental arthritis which varied from an acute hemorrhagic inflammation to a chronic deforming arthritis.

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[2] Perkins: Jour. Infect Dis, 1904, 1, 241.

centage was 10; free hydrochloric acid, 0; hydrochloric acid deficiency, 10; bile, negative; occult blood, negative; lactic acid, negative.

The stool (collected from above the hemorrhoid-bearing area) was a light chocolate-colored fluid, fermenting and very foul smelling, alkaline in reaction, positive for bile and strongly positive for occult blood. The microscopic examination was not remarkable except for the numerous pus cells, fat globules and starch granules. The little food ingested had been broth and gruels. Many subsequent stool examinations gave identical findings.

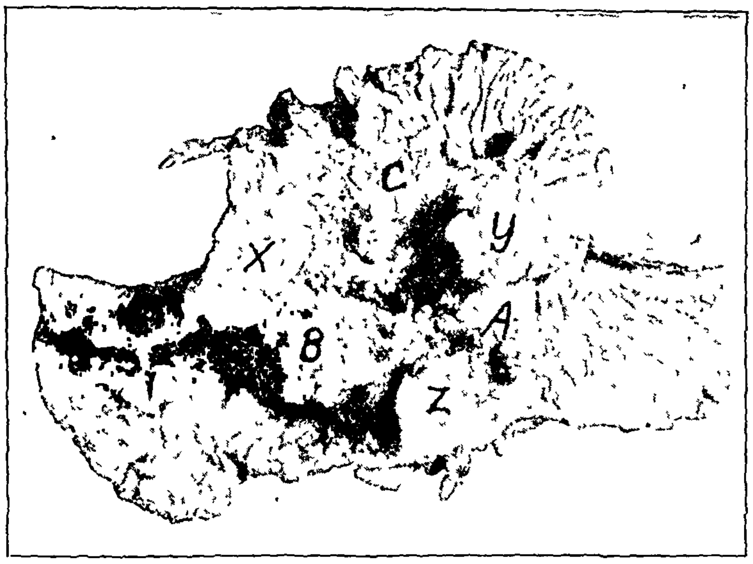


Fig. 4.—Photograph of gross specimen. *X*, *Y* and *Z*, when joined, formed openings, *A* into proximal colon, *B* into distal colon, and *C* into the duodenum, forming a duodenocolic fistula.

Specimens of the vomitus were frequently examined, and they showed constantly the presence of bile and no occult blood.

The Wassermann reaction in the blood was negative.

Before Roentgen examination it seemed that the following deductions and conclusions were justifiable:

A. Data indicating a cancer of the transverse colon:
  1. History of initial diarrhea followed by constipation.
  2. Pus and blood in the stools.
  3. Partial colonic obstruction.
  4. Palpable tumor.

B. Data indicating that the stomach was not involved:
  1. Occult negative vomitus and test meals.
  2. Absence of hydrochloric acid secretion in the stomach, not uncommon in cancer of other abdominal viscera.
  3. Constant presence of bile in the vomitus, and at times definite "stomach stiffening" relieved by vomiting material containing bile, pointed to a partial extragastric obstruction as a cause of frequent vomiting.

C. Data indicating an enterocolic fistula:
  1. History of localized peritonitis in the region of the tumor mass (chill, fever, localized pain and tenderness).
  2. Increase in the frequency of bowel movements during exercise and after taking food, with none at night.
  3. Undigested food particles in the stool, fat globules and starch granules (patient on a liquid diet).
  4. Diarrhea following a period of constipation with evidence of carcinoma of the colon.
  5. Persistent diarrhea, although associated with partial obstruction of the colon.

It therefore seemed that the only possible explanation of the foregoing group of findings was a carcinoma of the transverse colon complicated by an enterocolic fistula.

Roentgen Examination.—Three ounces of bismuth oxychlorid were given in 1 pint of buttermilk on a fasting stomach. The bismuth mixture entered the stomach normally. The greater curvature was somewhat irregular in outline, as shown in Figure 1; but on palpation this irregularity could be obliterated, suggesting that the moth-eaten appearance was due to external pressure on the stomach wall. There were no filling defects in the greater or lesser curvature. A good cap was not seen. The duodenum passed to the right across the midline and then downward and inward below the fundus. Although well defined, the duodenum did not seem to be distended.

Examination after three and one-half hours revealed considerable bismuth still in the stomach. Just beneath the greater curvature and in the region of the tumor mass, there was a constant irregular shadow, as shown in Figure 2, which could not be dislodged by palpation.

The six-hour examination revealed the stomach empty. The head of the bismuth column was in the transverse colon. The cecum and ascending colon were widely distended.

The ten-hour examination revealed the terminal ileum empty. The cecum, the ascending colon and first portion of the transverse colon were widely distended.

The patient had a liquid bowel movement at the end of twenty-two hours, but at the twenty-four-hour examination there was still a small amount of bismuth in the cecum and ascending colon.

Barium Enema.—Four and one-half pints of a barium sulphate suspension were given without any discomfort to the patient. Even though such a large quantity of the mixture was retained, the head of the column remained in the terminal third of the transverse colon. After vigorous manipulation over the head of the barium column, numerous loops of small intestine in that region were seen to fill, and later some of the mixture entered the other portion of the colon, gradually filling the cecum as well. This is shown in Figure 3.

The Roentgen examination showed no lesion of the stomach, but confirmed the diagnosis of carcinoma of the transverse colon with an enterocolic fistula.

Until April 9, 1915, the patient was fairly comfortable, with very little nausea and vomiting. At times there was some distention of the stomach, which was relieved completely by vomiting or lavage. At times there was general abdominal distention which was relieved by enemas. Late that afternoon the patient became markedly distended and nauseated. He vomited some fecal material He had no pain, and the pulse was good.

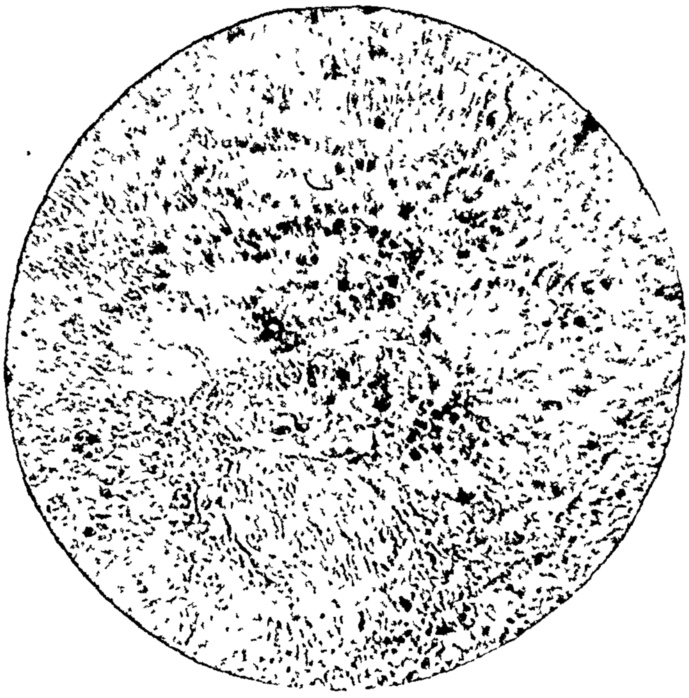


Fig. 5.—Photomicrograph of tumor.

Operation.—It was evident that superimposed on the foregoing findings was an acute intestinal obstruction. The patient was operated on immediately by Dr. Rea Smith. The abdomen was filled with distended loops of small intestine. The large tumor mass of the colon had a distended loop of small intestine attached to it. Through this loop, an enterostomy was quickly made. The patient returned to his room in good condition.

The enterostomy drained perfectly, and the following day the abdomen was soft and there was no pain. On the third day the patient began to have an occasional hiccup and eructation of gas. There was no pain or fever. The pulse was between 80 and 90. The next day there were considerable hiccup, nausea and vomiting, some of which had a fecal odor. The enterostomy was found to be free, and there was no distention. The pulse was from 90 to 100. The following day the vomiting continued, and the patient gradually became weaker, and died, April 15, 1915.

Necropsy (April 16, 1915).—A tumor of the distal half of the transverse colon was found, which was freely movable. Aside from a few recent adhesions to the greater curvature, the stomach was normal. The duodenum was distended, and entered the tumor mass 9 inches from the pylorus. The enterostomy opening was 3 inches distal to the tumor mass, thereby affording drainage for the small intestine, cecum and ascending colon, but not affording drainage for the duodenum. The obstruction was not complete, for fluid forced into the tumor mass from either of the four intestine ends would emerge from the other three. The openings from the duodenal and colonic sides, however, would just permit the passage of a small probe. When the large intestine through the tumor mass was opened, the cancer was seen to extend completely around the colon, and to include on one side about half of the wall of the duodenum (Fig. 4), thereby forming a fistula between the duodenum and the transverse colon. There were a few enlarged retroperitoneal glands; otherwise the examination was unimportant.

The pathologic report and photomicrograph (Fig. 5) by Drs. Brem, Zeiler and Hill showed the tumor to be an adenocarcinoma.

COMMENT

Some features of this case, aside from those outlined above, deserving special attention are:

1. The value of the Roentgen examination in confirming the clinical diagnosis.
2. An instance of true "stomach stiffening" without pyloric obstruction.
3. The possibility of a double intestinal obstruction should not be overlooked.

412 West Sixth Street.

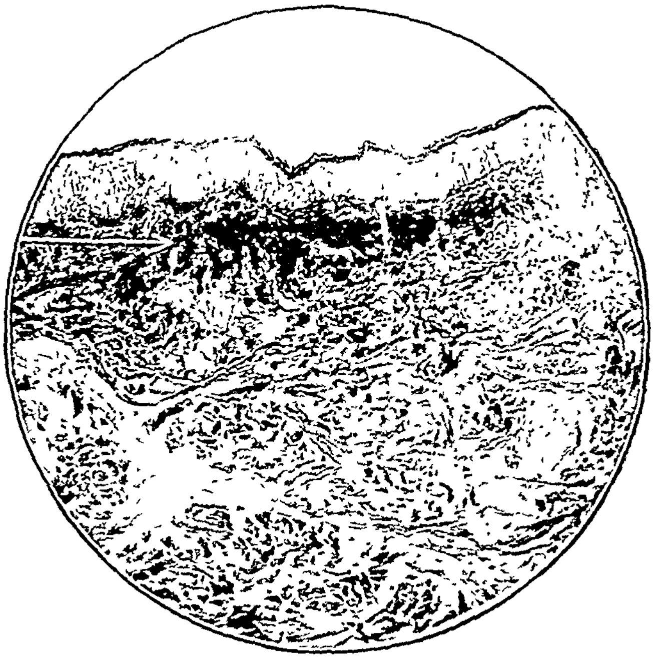
The Rittman Process.—*Commerce Reports,* January 22, says that the Rittman process of breaking up petroleum products has now issued from the experimental stage, and has taken its position as a recognized industrial asset. By this process vast quantities of petroleum waste hitherto used practically only for fuel purposes can be transformed into gasoline, for motor engines or into benzene and toluene for the manufacture of picric acid and trinitrotoluene. They also form the starting point for the synthesis of an almost endless variety of dyestuffs, medicinals, flavors, perfumes, etc. It is said that the by-products of the coke ovens of the country are at present sufficient to meet the demand for making the variety of chemicals referred to, but the Rittman process will serve to help out the gasoline supply. The process is thoroughly protected by patents, but no license fees or royalties are required in the United States.

BROWN STAINS IN THE SKIN FROM WET DRESSINGS OF A SOLUTION OF COPPERAS

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO

Miss M., aged 55, consulted me in February, 1915, for a peculiar permanent punctate staining of the skin. On first glance the picture strikingly suggested a follicular purpura in an unusual location. At the sides of the neck, over the shoulders and deltoid regions, and about the wrists and elbows the skin was peppered with yellow to dark brown stains. There were a few such stains on the feet and over the lower back. The individual lesions for the most part varied from the size of a pinpoint to that of a pinhead, with a few about the elbows 4 or 5 mm. in diameter. The spots were flat or slightly depressed, some of them showing punctate slight scarring. The picture closely resembled one of powder stains, except that the individual stains instead of being bluish black were yellowish brown. The skin was otherwise normal.

In the previous autumn the patient had had a violent outbreak of weeping dermatitis which had been attributed to poison ivy. It had been treated, according to her statement, with many applications, including a solution of lead subacetate, a chalky mixture and a grayish black solution which contained ferrous sulphate and vinegar. Her physician reported that this solution consisted of ferrous sulphate, 1 ounce, to vinegar, 1 gallon. At the time of the application of wet dressings of the solution, there was a violent dermatitis with a good deal of suppuration. The dermatitis finally healed under salves of unknown composition. The brown spots appeared in the skin after the application of the wet dressings of copperas solution and had remained. I first saw the patient four or five months after they had developed, and she thought the skin had not changed since their appearance. Ten months later she reported to me that they were, she thought, slightly fainter. She reported to me in September, 1916, almost two years after the stains were formed, that the spots were growing lighter.



Deposit of iron in the skin showing as Prussian blue after treatment with potassium ferrocyanid; tissue stained with Van Gieson's method.

One of the stains was excised for examination. It was hardened in 4 per cent. dilution of liquor formaldehydi and embedded in paraffin.

The epidermis over the pigmented spot was practically normal, showing, however, slight parakeratosis and scaling. As usual in scars, the papillae were destroyed, and the line of juncture between the epidermis and corium was flat.

The deposit of pigment in the skin is shown in the accompanying illustration. There were in the section two areas of pigmentation like the one shown. The pigment was situated in the subpapillary layer, with a thin zone of clear connective tissue between the pigment and the basal layer. In unstained sections, and in sections stained with hematoxylin and eosin, the pigment was of a light yellowish brown rather closely resembling melanin. Examined under the high power, it was seen to be composed of definite amorphous granules. These granules were not scattered diffusely through the area, but were in masses and clumps which varied greatly in size. The pigment for the most part lay between the fibers of the corium and between the cells of the inflammatory infiltration which surrounded it; but frequently clumps of pigment were found arranged about the nuclei, having either partially or wholly replaced the protoplasm of the cell. In some cases both the protoplasm and the nucleus appeared to be filled with pigment.

Around the deposit there was an inflammatory infiltration rather definitely confined to the area of pigment deposit. The infiltration was mainly perivascular, but it was found throughout the deposit. The cells were chiefly small round cells with some epithelioid cells.

To determine positively that the pigment was iron, sections were tested with ammonium sulphid and potassium ferrocyanid. Ammonium sulphid turned the pigment black, the remainder of the section remaining unstained. Sections were treated with dilute acetic acid solution, and then with potassium ferrocyanid solution. This turned the color of the pigment deposit to the characteristic Prussian blue. As a control, in order to determine that the amount of iron in melanin is not sufficient to produce these reactions of iron, sections of a deeply pigmented mole and of pigmented sarcoma were tested in the same way for iron. Neither test produced any discoloration of the melanin.

The explanation of the accident undoubtedly is that the ferrous sulphate in the vinegar solution came in contact with points where the skin was destroyed down into the corium. The alkaline lymph at these ulcerating points caused a precipitate of organic iron compounds which were ultimately oxidized into ferric hydroxid. This ferric hydroxid, or oxid, an insoluble substance in the blood plasma, remained as permanent stains in the skin.

It is very rare for accidents of this sort to happen, although insoluble substances are constantly applied in eczema and dermatitis. The reason for the rarity of the accident lies in the fact that unless a dermatitis is very severe, the deep layers of the epithelium are not thrown off. If an insoluble powder becomes entangled in the epithelium, it is gradually exfoliated. A stain will occur only when the epithelium at points is completely destroyed and there is ulceration in the corium, so that particles of pigment can be deposited in the corium itself. If this accident happens, healing takes place by the formation of connective tissue around the deposited pigment; there is then no chance for exfoliation to take place, and permanent stains are left, exactly as in gunpowder stains or tatooing. This case and one or two others that I have seen suggest the danger of using insoluble applications in cases in which there is a complete destruction of the epidermis or ulceration, no matter how minute the ulcers are.

I am told that particles of iron in the eye usually in time completely disappear. These particles are too large to be removed by phagocytes, and if they disappear it must be by their gradual solution. This suggests the possibility of the ultimate disappearance of iron stains in the skin, but the course of this case thus far indicates that this disappearance, if it takes place, will be only after a very long time.

7 West Madison Street.

Common Colds.—The phrase "common colds" like "charity," covers a multitude of sanitary sins, and curiously enough, the name has been applied to a group of affections which far from depending absolutely on cold are frequently the direct result of living in close, overheated surroundings having a lower relative humidity than the dryest desert known to man. —*Health News,* U. S. P. H. Service.

THE USE OF KEPHALIN TO HASTEN COAGULATION AND HEMOSTASIS AFTER SURGICAL OPERATIONS *

H. L. CECIL, M.D.
BALTIMORE

The need of hemostatic gauze to be used where packing is now necessary in deep seated operations, such as perineal prostatectomies, in which bleeding occurs within the prostatic capsule from which large hypertrophied lobes have been enucleated, has long been recognized at this clinic. This hidden intracapsular bleeding is often considerable, and many strips of iodoform gauze tightly packed within the prostatic capsule have often been necessary, and are even then not entirely successful. Accordingly I have experimented with a gauze impregnated with kephalin, which was shown by Prof. William H. Howell to be the best clot forming substance. Following his methods I have made kephalin from the brains of hogs.[1]

The gauze is prepared as follows: The kephalin is dissolved in an excess of ether, about a 5 per cent. solution being made, and this concentrated kephalin solution is poured over gauze strips 6 feet long and 6 inches wide. The packs are then folded, rolled, wrapped in two muslin covers and sterilized in the steam autoclave at a temperature of 120 C. for ten minutes. The heat necessary to sterilize them effectively does not interfere with the coagulation action of the kephalin.

Kephalin-coated catheter used in "punch" cases.

As soon as we began using kephalin gauze packs, it became evident that hemorrhage ceased much more quickly than when iodoform gauze was used, and that it was unnecessary to introduce so much gauze as previously or to pack it as tightly within the capsular cavities. This was at once a great advantage. Another effect was that the postoperative bleeding which came through the bladder drainage tube diminished rapidly. The gauze has now been used in thirty-four perineal prostatectomies. In many of these cases the urinary drainage has been clear from four to six hours after operation, and in nearly all other cases it is clear on the following morning. In only four cases has the drainage remained bloody for forty-eight hours, and I believe that in these cases the packs did not reach the bleeding point, as the bleeding may have been from a torn piece of mucous membrane at the bladder orifice. When these packs were removed there was only one case in which more than slight bleeding occurred, there being about 150 to 200 c.c. of blood lost. In the majority of cases there was scarcely enough blood to stain the dressings, while many of the patients did not bleed a drop, if one can judge by external appearances. It is important to mention in this connection that fewer packs were used than had been used previously, and thus tension within the wound by very tight packing in order to stop the bleeding was avoided. This would undoubtedly be of even greater importance in other branches of surgery than in urology.

After our success in prostatectomy it occurred to me that the bleeding which occurs after Young's "punch" operation — or median bar excision — might be stopped by a kephalin coating to the catheter drain which lies within the wound at the prostatic orifice. The kephalin-coated catheters were prepared as follows: A very concentrated solution of kephalin in ether was made and smeared on the terminal 3 inches of a large gum coudé catheter, the tip and eye of the catheter being left uncoated. This coating was best secured by allowing the solution of kephalin to drop on the catheter, which is being revolved at the same time. This coat is about 1 to 2 mm. thick, and surrounds the catheter, as shown in the illustration. The catheter is then sterilized in a glass tube by steam in an autoclave at a temperature of 120 C. for ten minutes. In this way a large amount of kephalin is brought into direct contact with the cut surface at the vesical orifice.

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*From the James Buchanan Brady Urological Institute, Department of Urology, Johns Hopkins University and Hospital.

[1] We are now using kephalin made by Armour & Co., at my suggestion.

The kephalin has been used in four "punch" cases, the catheters being prepared as described above. Whereas previously these patients had frequently to have clots evacuated from the bladder, it was necessary in only one of the cases in which it was used, and in this case the clot was very small, being only large enough to plug the eye of the catheter. Though it has been tried in only a small group of cases, the results seem to be a striking improvement over the plain or iodoform gauze which has been previously used in all of the perineal prostatectomies, and if one is allowed to judge from four "punch" cases, the result in these cases was still more striking, as there was practically no bleeding at all.

With such results as these to report it seems well to say a word of caution in regard to the method of using kephalin. I believe, from the few times I have seen it tried, that if the gauze soaked with kephalin is used to sponge wounds, no good result is produced, since the sponge takes away with it the clot before the vessel is plugged. In a like manner the smearing of kephalin on a wound to prevent bleeding is equally open to criticism. It appears to me that both of these methods are theoretically and practically open to objection. The widespread recommendation of such an application may serve to condemn a method which if properly used would be of very great benefit to surgery.

Dr. A. D. Hirschfelder, also following the work of Howell, has used in an experimental way the same substance, but in a more impure form. He found that it was of great benefit in bleeding from bone.

CONCLUSIONS

The following conclusions may be drawn:

1. Kephalin causes a quicker and firmer clot.
2. Not as much pressure in packing is required to control hemorrhage as when plain or iodoform gauze is used.
3. When the packs are removed, the clot is of sufficient firmness to prevent bleeding. This is not true of other packs.

Comment by Dr. Hugh H. Young.—Active hemorrhage and slow oozing, which together amount to considerable loss of blood in a few cases, have been a well recognized complication after all forms of prostatectomy. In perineal prostatectomy the gauze packs can be so placed under visual guidance that this complication rarely causes any harm. As a result, the mortality is much less than suprapubic prostatectomy. In some cases, however, many strips of gauze tightly packed in the capsular cavities were necessary to stop the bleeding. This mass of gauze was objectionable — particularly when time came for its removal.

This new kephalin gauze is unquestionably of great value; the capsular bleeding ceases as a rule very quickly after the insertion of a small amount of gauze, and much less packing is required. The large single retention catheter with a kephalin coating acts like magic in the median bar "punch" cases, and removes the one objection to this simple, safe and satisfactory operation.

THE FREEDOM OF THE MEDICAL PRESS *

EDWARD C. REGISTER, M.D.
CHARLOTTE, N. C.

I have chosen a most serious theme, quite well realizing that, far more than we dream, we are making history in our deliberations. The subject may sound somewhat strange. To many of us, the freedom of the press is an accomplished fact, and we listen to the term as one listens to the battle-cry of some ancient age. It is, therefore, not an easy subject to discuss, for two reasons. First, as I have said, we are very prone to take for granted that the freedom of the press is one of the fundamental liberties that were wrought out and won by the heroic endeavors of our fathers, and that it is a fixed and immutable heritage of us, their sons, and as changeless as the process of the stars. The second reason for the difficulty of my theme is that unconsciously we think of the freedom which is ours, either political, industrial or religious, as a right that can be destroyed only by governmental tyranny, and we console ourselves that the freedom of the press has no enemy. But I remind you of the words of a great patriot, that "eternal vigilance is the price of liberty." And the freedom of the press is an essential part of that larger liberty of mankind which has been the object of the evolution of government and of the people. So important did our fathers consider the freedom of the press that many of our states saw fit to write it into their constitutions, and you are quite well aware that it forms a part of the constitutional history of the older nations. We must realize how essential to all liberty is the liberty of the freedom of expression of ideas. I know of no greater proof of the worth of the freedom of the press than the fact that military despotism even today must limit that freedom among the warring nations, in order to make military government possible.

But, you will inquire, in what way is the freedom of the medical press endangered? Am I not uttering a false alarm? Am I not calling to arms men when no enemy threatens? Let us consider this matter deeply and calmly. In the beginning of the consideration, let me say in all justice to those who differ with us that I do not say that any man, or company of men, is trying to defeat that freedom of the press which we so highly esteem. The men and the movements of which I speak would be, perhaps, the first to disclaim any desire or purpose to put on the medical press a censorship which would practically destroy this freedom. I say this in justice to them. Still, unconsciously those things can be brought to pass which we come too late to see are destructive of the best in our scientific life. Let me give an illustration: The wind and rain of ages covers the ancient Roman forum with a fine coating of débris and dust. To no one generation was this process visible, but each generation and each country added to the layer of dust until, in our modern age, Byron stood and looked out on a wilderness that was once the heart of Rome and saw the top of a single shaft where once the pride and the pomp and the beauty of Rome were centered. The sphinx will again illustrate this process. But these are only two illustrations among many. It is in this gradual, and sometimes unconscious way that the best possessions of mankind are lost. And it is my purpose to call your attention to some of those things that seem, slowly and unconsciously, to threaten the freedom of the medical press.

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* President's address, read before the American Medical Editor's Association, New York, Oct. 25, 1916.

In my judgment, the greatest enemy of this freedom is the attempt on the part of some very good and sincere men in our profession to put the medical press officially and irrevocably under the medical organizations — the different state medical societies — and to destroy beyond repair the privately owned and edited journal. Let us scrutinize closely this movement. In the first place, on account of the interlocking and ramifying systems of medical associations, the officially owned and edited medical journal becomes a unit, to such an extent that there will be, practically, but one official medical journal in all our profession. Just as the policies of all medical associations are coming more and more to be controlled and directed by the great parent American association, so all officially owned medical journals must more and more come under the dominance and powerful influence of the central journal. Surely he is blind who cannot see this evolution. One compact and all-inclusive organ will be as necessary for the official journals as it is for the official associations. What will be the result of this? That the entire medical press, if the privately owned journal is whipped from the field, will be under the management and direction of what will practically be a central board of censorship. This is precisely that condition of the secular or political press against which English and American democracy struggled through long generations.

We find a perfect parallel of this development in the industrial world. So powerful and so compact did industrial organizations become that America awakened to find that large communities of workers had been reduced to a point of industrial serfdom, and that thousands on thousands of the honest toilers of our land lived and moved at the command of some single great central organization. I would not have you understand that, in my opinion, this movement was without its beneficial aspects. I am trying only to point out that powerful and unified organization tends, at least, to destroy individual freedom both in thought and in policy. So much does it tend in this direction that the greatest statesmen of our day have given themselves to the hard task of saving industrial liberty out of the hands of the predatory trusts without destroying the efficiency of commerce.

It is precisely this possibility to which I call your attention in the present-day movement among medical associations. Compact and powerful organization is a thing to be desired, for many reasons; but we need to be eternally on our guard lest we lose more than we gain. Let us be very specific for a moment. Let us suppose that all medical journals are brought under the official control of medical organizations, and that those organizations are more and more closely united and compact. Who will be the dictator of the editorial policies of the medical press? It is not difficult to answer this question. There could be found no local association or local journal that would have the power to resist the influence and control of a great central press without a great deal of timidity or without jeopardizing his relations to the great central medical press. Even now, our great central association and our great medical association journal dictate the policies of every state medical journal and possibly two thirds of the policies of every state medical society. As I have said before, I repeat that we would, practically, have but one medical journal in America; there would, practically, be but one expression of opinion, and that would be the opinion of the few in control of the great central association and its journal. For some reasons, this might not be a bad thing. Monarchy has its strong features; but to quote an illustrious statesman, "No man is great or good enough to control the expressions of opinion of a great profession such as ours."

To those of you who may be doubtful whether or not we are threatened by any such thing, I would say, examine the condition of the public press in Russia. See how it is controlled by a central board of censors, and you will quite fully realize how little liberty is possible under such conditions. The Russian bureaucracy is too well known to need description here, and it is almost unnecessary that I should say that in our profession of medical editorship we want no bureaucracy; and our greatest defense against such a calamity is to see clearly just in what direction the present tendencies in medical organizations and in the medical press are tending.

In the system of officially owned and controlled medical journals there is far too fruitful a field for the medical politician. It is a well known fact that the medical associations, as every other association known to man, is often dominated by a political clique, certainly so far as the distribution of honor and the places of power are concerned. This is always true where individual ambition and success depend so largely on the publicity which can be obtained through the press. This condition makes it possible that the selection of an editor for such an organ is not always on the basis of merit. With your permission, I will declare it as my belief that the freedom of the medical press is greatly hampered when an editor must depend for his election, or his reelection, on a majority vote of the medical association, or when his journal must succeed or fail according to the pleasure or displeasure of the society politician.

In addition to this, the control of the medical editor of the official organ involves a too frequent change in editors. No one knows better than we how long must be the training of the man who becomes an efficient director of a medical publication. Long and weary years in apprenticeship, disappointments, struggles and work must be the discipline of him who seeks to be an efficient spokesman and publisher in the interest of the world's most vital profession. This training cannot be had, in the nature of things, when the editor must be changed with the changing official life and control of the association. From the standpoint of mere efficiency, the selection of an editor must depend on the merit and not on those qualities of popularity and good fellowship which so often secure for a man favor and votes. In the years of the centuries that are gone the dependence of a publisher or editor on some monarch's whim, or worse still, the whim of some monarch's favorite, was precisely the condition that made the freedom of the press impossible.

Again, an officially owned journal has a life that is not dependent on the value of its product. It is officially supported and can exist independent of popular approval or disapproval, a condition that has always limited freedom in the exercise of popular judgment and selection. This is precisely why it is possible to charge 3 or 4 dollars for a journal worth about 80 cents. In reply to this charge that we editors of private journals are selling medical literature that has a commercial taint about it, it is very easy for us to rejoin that their system enables them to sell medical literature that is without commercial value. The official organ can sell its produce by force of organization. The independent medical journal must obtain a market by force of merit, only.

Referring to the medical association journal, it must be clear to every one who is familiar with the question that it is not for the best interest of the medical profession for medical associations and medical journals to be financially and politically too closely related. I have known the whim or capricious desire of one influential man in a medical society to cause good men to lose their official position. This cannot be when a medical journal is independent. The editor can go about his task unafraid of all things save his own inefficiency, and can be true to his own ideals without a continually haunting fear of incurring the displeasure of some powerful clique and losing his position, through the failure to do the bidding of aught save the truth.

I think that no cultured, professional gentleman will question the statement that lack of competition is one of the surest roads to tyranny and injustice and corruption. One needs but to look on the industrial world to realize the truth of my statement. Our wisest statesmen continually remind us that competition is in many ways essential to industrial success and freedom. At this point, it behooves us to be most serious and careful. In the plan of the officially owned medical journal there is no place for competition. One state medical society journal cannot compete with another, and certainly it would not be wise for them to differ in opinion or policy with the great national medical journal. And who will deny that lack of a fair and spirited contest in the field of journalism is just as destructive of freedom as it is in the field of industry or of government or in any other calling in which we might be interested?

Again, I call attention to another serious menace in this system of officially owned medical journals. The freedom of any press depends largely on the open forum which its columns furnish for the free expression of honest opinion and totally without prejudice. In the system of privately owned and competing journals, there is the broadest possible opening for such an expression of medical opinion; but in a system of centrally owned and controlled journals what will become of this open forum? It will lie in the power of a few men, and often of one man, in all this nation to see who shall gain entrance to the columns of the American Medical Association journal and what opinions shall be given expression there. The editor of a state medical society journal also has this power.

There is no appeal in this circumstance. If his paper is refused by his state medical society editor, it must find its way to the waste basket. I need not call your attention to the fact that such a condition would practically make the freedom of medical opinion merely a word having no reality or respectability, and each of us would be compelled to sue at the feet of some central board or of some sanctified individual to be allowed to give expression to our medical opinion, or to give publicity to a remedy, an apparatus, a fixture, or a machine which we had found to be of value to mankind.

Let us turn now to consider those elements of the privately owned journals which seem to offer the best guarantee for freedom and efficiency in the medical press. In the first place, its financial and professional success depend wholly on its ability to meet the need of the profession. Its excellence and its real scientific value to the medical world are its only assets. It has no artificial subscription list. No physician is allowed to purchase it, and its management is forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve. To put the matter squarely, it must win its life through service, and service not only to the whole profession but also to mankind. It cannot, therefore, be unmindful to the voice of the profession, nor can it ignore a democratic expression of opinion. Quite a little bit of our therapeutic knowledge has been derived from quacks and irregulars.

Again, medical journalism may well learn the lessons of the broader journalism of the world of which it is a part. In this broader journalism, it is the free and privately owned periodicals which have come to the place of greatest power. The London *Times*, the New York *Evening Post*, the *Outlook* and many others are an illustration of the excellence of independent journalism. In comparison with these great newspapers where stands your political organ? It is very easy for one to see that the independent secular press is growing in power and prestige, and the officially owned organ is becoming less and less in the world of politics.

The privately owned medical journal is without the power to oppress. By the process of competition, of which I have spoken, the medical public has its remedy. If it should enter into the purpose of the editor of a private medical journal to be dictatorial, unfair, to shut his columns to those in whom he has no personal interest, or to make of his journal a means for the attainment of his own selfish purposes or ambitions, or to lend its powerful influence to those ideas or remedies which are either untrue or fraudulent, he would find himself without a constituency and the medical profession turning to some other journal for enlightenment and medical literature. It is this law of competition which forces men in all departments and activities of life to seek to render honest and efficient service, and it is precisely this competition which the official medical journal would not have, and this lack, as I have pointed out, would become a great menace to medical journalism.

Again, if we may be allowed to adopt the standard set by mankind's wisest spirit, and judge the tree by the fruits thereof, I make the unhesitating claim that the wisdom of the system of privately edited journalism is established beyond all question of cavil. He would be a bold man, indeed, who would dare to give aught but praise to the great journals of Europe and America that through the centuries have won to honorable leadership in the world of the medical press and to places of power and influence in all the journalism of the world. The reading of their names sounds like an honor roll: I have in mind the London *Lancet*, the *Edinburgh Medical Journal*, the *Glasgow Medical* valedictory, speaking not for myself but for the whole brotherhood of physicians and surgeons, not for my good but for the good of all the generations yet unborn, not for my own little life but for the limitless life of mankind, I shall urge you to preserve in its purity the right of open and free expression of medical opinion, and hand on to the generations yet to be the fine and high traditions of our profession, which have been given to us by the fathers.

DOUBLE FEMORAL HERNIA IN A MAN

Leopold Mitchell, M.D., Schofield Barracks, H. I.
Captain, Medical Corps, United States Army

W. L., colored soldier, aged 31, eight years since in the United States Army, and at present a cook in the Quartermaster Corps, about eighteen months before coming under observation noted a small swelling in the left groin which gave him some pain. The swelling was not constant, and he noted that by applying pressure it could be made to disappear. As the swelling persisted over a period of months, gradually showing a tendency to become larger, and as the attacks of pain became more marked, he reported at sick call for treatment, the diagnosis of femoral hernia was made, and the soldier was admitted to the hospital for operation. This consisted in high ligation of the sac, suture of the stump to the abdominal wall, suture of the pectineal fascia to Poupart's ligament, and closure of the skin. The patient made an uneventful recovery.

During the first week that he was permitted to be up and about, he reported that he had felt a sudden pain in the abdomen, similar in character to that preceding each appearance of the hernia in the left groin. He immediately investigated the site and, failing to find anything in this region, turned to the right groin, where he noted a swelling very much like the former one on the opposite side, which disappeared on his lying down. These facts were reported to the ward surgeon, and the patient was advised on the recurrence of this tumor to report immediately to the first medical officer available. The next afternoon he reported to the medical officer of the day, who identified the tumor as a femoral hernia. On being told that another operation was necessary, he asked if an opening in the abdominal wall at the site of the umbilicus could not be closed at the same time. He stated that this defect in the abdominal wall had been present since childhood, and that while nothing had ever come through it, it pained him considerably when on long hikes. Examination disclosed a defect in the abdominal wall at the site of the umbilicus sufficiently large to admit the tip of the thumb readily, with no evidence of any protrusion of abdominal contents. At operation no sac was found at the umbilical opening, which was closed by overlapping the rectus sheath, and the femoral hernia was treated as in the first operation. The patient again made an uneventful recovery, and at present is apparently cured.

The comparative rarity of this condition is believed sufficient justification for the report of this case.

The Route of Investigation.—So much yet remains to be done in the field of chemical pathology that we are sometimes inclined to disparage past achievements. But these are not inconsiderable. In edema, concretions, diabetes and other onditions of acidosis, pathological variations in metabolism, ver, and in numerous other directions substantial gains n recorded. Uric acid has been found not guilty of offenses charged in the earlier indictments, and nsibility for gout must be borne by as com- traction as tautomerism. But, by all odds, in the field of pathology is the widening e fu the important advances must cal her than by the histological Science, December, 1916.

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Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 549*)

ACUTE CONGESTION OF THE KIDNEYS

Circulatory disturbances frequently occur in the kidneys. With every acute infection, with every high rise of temperature, with every extreme chilling of the body, and with every pathologic chill, the kidneys become more or less acutely congested. Chilling of the body will increase the amount of urine passed by raising the general arterial tension, and, if this amount is large, it will be of low specific gravity. Lowering of the general arterial tension, especially the surface tension, will diminish the amount of urine passed, and usually raises its specific gravity. During the high fever of all acute illnesses the amount of urine is generally diminished; it is usually concentrated and of high specific gravity, and urates and phosphates may be deposited on standing. It may contain albumin and hyaline casts. Lumbar backache is associated with the first stage of most acute infections, doubtless owing to kidney congestion. There are occasional cases of hematuria without special local pathologic condition.

During the increased metabolism of high fever, the kidneys must do an additional amount of work to eliminate the increased waste products, as in a disease accompanied by high fever, much perspiration, or diarrhea, the amount of water excreted by the kidneys is diminished, thus requiring a greater effort in the excretion of salts. Therefore it is a physiologic necessity (unless some circulatory or stomach affection prevents) to give the patient a liberal amount of water during all feverish processes. If water cannot be retained by the stomach, it should be introduced into the colon.

If the skin is perspiring normally, the disturbance of the kidneys is less than when the secretion from the skin is abnormal; if the skin is dry or inflamed, as in scarlet fever, and is excreting little or no water, there is a strain on the kidneys. When the skin is affected by scarlet fever, erysipelas, large burns or other infections that interfere with its secretions, kidney irritation is a concomitant factor. When the skin is covered with perspiration, particularly if it is cold and clammy and if there is depressed circulation or shock, kidney excretion is generally diminished, and no treatment that does not improve the circulation and raise the blood pressure will be efficacious.

When the patient is suffering with edema or a more general dropsy, less water should be imbibed, and the treatment should be that of circulatory failure or nephritis, according to the cause of the condition. If an enormous amount of liquid has been lost from the body, whether by profuse watery diarrhea, persistent vomiting, diabetes mellitus, diabetes insipidus, or severe hemorrhage, water must be introduced into the tissues and circulation in the manner most effective for the preservation of life.

Ordinarily these acute congestions of the kidneys quickly disappear, and the kidneys again function in a normal manner. However, the cause of congestion may be greatly prolonged, as is the case in an eruptive fever with serious inflammation of the skin, such as scarlet fever. The irritation may then be prolonged until acute nephritis results, as the germ or the toxin of the germ of scarlet fever may be an added irritant to the weakened kidneys. In many acute general dis-cases, such as influenza and tonsillitis, the fever is short-lived and the acute congestion of the kidneys soon disappears. In more chronic infections, such as typhoid fever, the onset of the disease is often accompanied by a high fever; however, the temperature soon falls, and the slight kidney congestion apparently disappears, so that the only treatment necessary is to give the patient plenty of water.

Acute congestion of the kidneys may be caused by many drugs, such as the irritant diuretics, mercury, arsenic, potassium chlorate and antimony. Many coal-tar products of the phenol type, and synthetic drugs of the sulphonal type may cause irritation and even slight congestion of the kidneys. Acute nephritis may result from extreme intoxication produced by some of the more irritant poisons; kidney congestion may follow absorption of bacterial poisons from the intestine.

The symptoms of kidney congestion are backache and a frequent desire to urinate, while the small amount of urine passed is usually concentrated, with or without albumin, cylindroids, hyaline casts, and occasionally granular casts. Of course, many serious conditions of the kidneys do not cause backache, and furthermore, many lumbar pains do not have any relation to kidney disturbances; but it is believed that the lumbar myalgias associated with the beginning of acute infections, associated with signs of kidney disurbances, are due to kidney congestion.

CHRONIC (PASSIVE) CONGESTION OF THE KIDNEY

This disease is caused by interference with the return circulation in the renal veins; in other words, by any cardiac insufficiency which causes a damming back of the blood in the inferior vena cava, or by any pressure in the abdomen that causes interference with the circulation in the renal arteries or veins. This localized interference with the kidney circulation may be due to disturbances of the liver, ascites, tumors, pregnancy, lordosis or a loose kidney. Passive congestion of the kidneys may also be caused by lung conditions which hinder the return circulation through the inferior vena cava, such as pleurisy with effusion, emphysema, advanced tuberculosis, and tumors in the thorax. The urine in passive congestion is ordinarily concentrated, of a rather high specific gravity, tends to deposit urates on cooling, may contain albumin, and often shows blood corpuscles.

Chronic irritation of the kidneys often accompanies diseases of the liver, chronic diarrhea, or continued intestinal disturbance, such as chronic colitis. Chronic irritation long continued and chronic passive congestion will eventually cause kidney degeneration and chronic nephritis.

The only efficacious treatment for passive congestion of the kidneys is the removal of the cause. If this cannot be done, anything which will improve the circulation may, temporarily at least, improve the condition of the kidneys and increase the amount of normal urine.

ACUTE NEPHRITIS (ACUTE BRIGHT'S DISEASE)

Acute inflammation of the kidneys is usually caused by some acute infection, such as scarlet fever, diphtheria, measles, cerebrospinal meningitis, typhoid fever, smallpox, yellow fever, any septic infection, serious burns, erysipelas and acute general eczema, and by various poisons, especially the metallic poisons. Occasionally it begins as an inflammation without apparent previous cause, and in these cases it is supposedly due to cold; but cold alone does not ordinarily have such serious effect. The apparent onset may be sudden, edema, which generally develops in twenty-four hours, being the first symptom; or the inflammation may be preceded by a chill, followed by a slight fever. Nosebleed may occur, followed by hemorrhages into the retina, and if the amount of blood and albumin lost by the kidneys is great, anemia will rapidly follow. Almost similar symptoms indicate an acute exacerbation of chronic inflammation of the kidneys.

Inflammation of the kidneys is attended by the usual local symptoms accompanying any inflammation. There are an increased blood supply, swelling of the kidney, exudate into the tubules, and impaired kidney function; the urine diminishes and becomes concentrated, albumin, casts and blood appear, and frequently suppression is the eventual stage. Associated with these symptoms are headache, vomiting, and often diarrhea. There may be no fever, unless the acute nephritis is a complication of a condition that was already producing fever. There may be an increase or a decrease in the rate of the pulse; the former condition is the usual one. A certain amount of general edema occurs, its seriousness depending on the region of the exudate; edema of the lungs or edema of the brain may develop. The blood pressure generally rises, and with suppression of the urine, uremia with all its symptoms and dangers will probably result.

As stated above, when acute nephritis is a complication of some other infection or general condition, the symptoms will be modified by those of the causative disease; but when acute nephritis is the principal condition, if the patient is to recover, the kidneys begin to functionate, and a small amount of smoky, muddy urine, loaded with casts — hyaline, blood, epithelial and granular — is passed. Little by little the bulk of urine increases, the blood vanishes, the casts and albumin are diminished, edema disappears, and the patient slowly becomes convalescent. The excretion of chlorids, which have at first been almost absent from the urine, gradually increases as the edema lessens. The urine of acute nephritis is generally of a high specific gravity; however, the total amount may show a greatly diminished excretion of solids, while the blood retains nonprotein nitrogen.

If the nephritis is a complication of one of the exanthems, the skin may show the eruption of that particular disease; if the nephritis is not caused by an eruptive disease, it will probably be accompanied by urticaria, itching of the skin, and perhaps by a severe eczema. Forerunners of approaching uremia are eye-blurs, possibly retinal changes, severe headache, momentary losses of consciousness, muscle twitching and cramps, and eventually convulsions and coma.

When numerous cerebral symptoms announce the beginning of this disease the prognosis is very unfavorable and the patient may die within a few days; while in mild cases the inflammation may last several weeks. Whether the kidneys will again become entirely normal cannot be determined for several months, as small amounts of albumin and casts may persist in the urine for weeks and months, and yet the kidneys will finally return to a healthy condition.

The first intimation of an acute nephritis may be a general edema, with few other symptoms. Backache is not necessarily an accompanying symptom even in acute nephritis. This affection may also be superimposed on a chronic nephritis, due to some infection or to some carelessness in diet, or to exposure to cold

(To be continued)

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SATURDAY, FEBRUARY 24, 1917

OCCUPATIONAL DISEASES IN CHEMICAL TRADES

Almost every industrial environment furnishes certain dangers to health. These occupational hazards, usually caused by such conditions as darkness, dampness, bad ventilation, exposure to extremes of heat and cold, long hours, fatigue, or monotony of employment, are more or less common to many industries. There is an evident awakening of the public conscience in respect to the importance of the hitherto largely neglected problems which are presented by modern industrial hygiene. An international congress dealing with the subject of industrial diseases was held in Brussels in 1910 and was attended by more than 600 delegates from various quarters of the globe. Societies and commissions are being organized to undertake the investigation of the questions at stake. Governmental agencies have been stirred up to the desirability of securing more knowledge in respect to the effects of industrial life on the health of a large part of our population and of devising more adequate methods of remedying known defects.

Certain factors have served, of late, to emphasize more effectively than ever before the paramount duty of the nation toward its factory workers. The widespread introduction of workingmen's compensation laws has made it desirable and sometimes necessary to determine the distinction between disease from occupation and injury from accident. Some maladies are clearly traceable as resulting from occupational causes; but in many cases a fair decision as to the responsibility for bodily harm has been made only with difficulty, owing to the prevailing lack of acceptable information of a scientific or statistical character. The projected plans for health insurance on a large scale furnish an added reason for devoting attention to the problems of occupational hazard.

The chemical industries, in particular, are in need of consideration with respect to their occupational diseases. They involve certain specific hazards of a peculiarly serious nature; and the enormous growth of chemical manufacturing in the United States since the beginning of the European war has only added to the need for activity in this field of industrial hygiene, as pointed out in the symposium on occupational diseases in chemical trades before the American Chemical Society a few months ago.[1] The specific hazards in the chemical industry have been summarized by Dr. Schereschewsky of the U. S. Public Health Service as consisting of effects on the body by irritating or poisonous dusts, fumes and gases. Not long ago, eighty-two substances were included in a list of industrial poisons,[2] and the actual number of menacing compounds is unquestionably decidedly larger.

Among the poisonous fumes and gases, some are primarily of an irritating character; but many of these are far more dangerous than was believed a few years ago. After stopping the inhalation of such gases, there may come a prompt relief from the sense of suffocation and an apparent recovery; in a few hours, however, symptoms of severe and fatal illness ensue. In addition to the more purely irritating gases which attack, above all, the mucous membranes of the respiratory tract, and the effects of which have incidentally been illustrated over and over in the present war, there are the so-called toxic vapors, formed by mercury, lead and certain arsenical compounds. Carbon monoxid, hydrocyanic acid gas, hydrogen sulphid, and the volatile coal tar derivatives also have prominence in the group of fumes and gases. It has been stated that anilin probably causes more industrial poisoning than any other chemical compound with the exception of lead. Many of the coal tar derivatives acquire an added danger from the fact that they may be absorbed not only by inhalation but also through the unbroken skin.

The manufacture of explosives has brought an unexpected share of dangers, aside from accidents such as explosions or burns. Dr. Alice Hamilton[3] of the U. S. Department of Labor has already encountered more than thirty poisonous substances which may play a part in the chemical hazards of the munitions industry. Besides the fumes of nitrogen oxids, of chlorin gas and of sulphur dioxid, there are benzene and toluene and their many derivatives, the nitrobenzenes and nitrotoluenes, phenol and sodium phenylate, the nitrophenols, ammonium picrate, anilin, diphenylamin, dimethylanilin and tetranitromethylanilin. More familiar substances also enter into this manufacture: sulphuric ether, ethyl alcohol, methyl alcohol, ethyl nitrite and amyl acetate. In the making of detonators we find mercury, mercuric nitrate and fulminate of mercury. The new poison, tetrachlorethane, used in the varnishing of aeroplanes, has already been referred to in The Journal.[4] This substance, which had given no trouble at all in 1913, produced, in 1914, twenty-three cases of poisoning in the British factories with four deaths.

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[1] Symposium on Occupational Diseases in Chemical Trades, Jour. Indust. and Engin. Chem., 1916, 8, 1054.

[2] Sommerfeld, T., and Fischer, R.: Bull. 100, Dept. of Commerce and Labor, Bureau of Labor, May, 1912.

[3] Hamilton, Alice: Dangers Other Than Accidents in the Manufacture of Explosives, Jour. Indust. and Engin. Chem., 1916, 8, 1064.

[4] Poisoning by Tetrachlorethane, Miscellany, The Journal A. M. A., Feb. 27, 1915, p. 766. Tetrachlorethane, Current Comment, Oct. 30, 1915, p. 1561.

This hasty review may suffice to indicate the seriousness of the menace to the health of our chemical workmen. The causes of possible distress are so diverse in character, mode of action and entrance into the organism that no simple or single rule of preventive hygiene will suffice to cover the cases. Manufacturing interests have begun to realize that removal of unnecessary risks to life and health tends to increase efficiency and economy of production. But occupational hazards must be combated for humanitarian as well as purely selfish reasons. This does not mean that American chemical manufacturers are indifferent or entirely inactive in this matter. Their initiative, which is largely local and personal, must be supplemented.

"THE FREEDOM OF THE MEDICAL PRESS"

Elsewhere in this issue we publish an address delivered some time ago by Dr. Edward C. Register, editor of the *Charlotte Medical Journal.* Some of our readers may wonder why such an article was accepted for The Journal. It was accepted and is being published because it plausibly presents a bad cause, a cause whose principles The Journal has criticized in the past and continues to criticize. The article was a presidential address before, and enthusiastically received by, an organization practically kept up by the privately owned medical journals. It presumably represents the views of the majority of the members of that organization. It was accepted with the distinct understanding that it would be discussed editorially in the same issue in which it appeared. Nothing said is to be taken as a personal criticism of its author. Our comments are concerned with Dr. Register only as he happens to be the editor and publisher of the *Charlotte Medical Journal,* a publication which The Journal has criticized more than once.

"The Freedom of the Medical Press" is ostensibly a defense of the privately owned medical journal and a warning against the supposititious dangers of autocracy or bureaucracy in the medical profession due to organization. Actually, it may be regarded as a plea for nostrum-controlled, in contradistinction to physician-controlled, medical journalism. It "views with alarm" what its author considers a menace to the freedom of the medical press, viz., the growth of official medical journalism. With every desire to avoid *argumentum ad hominem,* it is essential to a correct perspective that attention be called to certain facts. We believe that it is impossible for the editor and publisher of such a journal as the *Charlotte Medical Journal* to view the subject of medical journalism from the broad standpoint of the best interests of the medical profession and the science of medicine, because, as an examination of the advertising pages of the *Charlotte Medical Journal* will show, that publication has for years been supported more largely by the nostrum interests than by the medical profession. "Sal Hepatica," "Angier's Emulsion," "Campho-Phenique," "Pluto," "Pond's Extract," "Sanmetto," "Hayden's Viburnum Compound," "Tongaline," "Cactina Pillets," — these and many, many other products of a similar nature, which have nothing to commend them either from a standpoint of scientific medicine or from the simpler problem of honesty to one's patients, are advertised in the *Charlotte Medical Journal.* It may be inferred that on the broad question of conducting a medical journal, Dr. Register's views can but be warped by the sponsorship he has assumed in accepting advertisements of such products for his publication.

"The Freedom of the Medical Press" voices at the outset the fear that the American Medical Association has become and is, in effect, a "Trust." This self-conjured bogy has long been used by those interests that have opposed organized medicine and whose activities are notoriously inimical to the public health. It is not usual, though, to find intelligent physicians seriously putting forward a charge that is obviously ridiculous and fundamentally false.

> "Even now, our great central association [the American Medical Association] and our great medical association journal [The Journal] dictate the policies of every state medical journal and possibly two thirds of the policies of every state medical society."

This statement will seem humorous to those who are familiar with most of the official organs of the state societies. In the nature of the case, however, the average physician sees but few of such journals; probably not more than one, that of his own society. The facts are that of all responsible medical journals the state journals have been and are the most severely critical of the Association and The Journal.

> ". . . I will declare it as my belief that the freedom of the medical press is greatly hampered when an editor must depend for his election, or his reelection, on a majority vote of the medical association. . . ."

Certainly a far cry from the charge of bureaucracy and autocratic power! In one breath the organization journal is said to endanger the freedom of the medical press because the power is too centralized; in the next breath the freedom of the medical press is threatened when the editor's position depends upon the will of the majority!

> "Again, an officially owned journal has a life that is not dependent on the value of its product. It is officially supported and can exist independent of popular approval or disapproval. . . . This is precisely why it is possible to charge 3 or 4 dollars for a journal worth about 80 cents.

If there is one fact connected with medical journalism that has been demonstrated beyond cavil it is that the journals of the various organizations can not and do not exist independent of the approval or disapproval of those organizations. So far as organization journals are concerned, we know of no case, and none is specified, in which the profession is paying "three or four dollars for a journal worth about eighty cents." But supposing, for the sake of argument, that there were such cases, The Journal would contend that it would be better for the public, for the honor of our profession and for the science of medicine, to say nothing of the intellectual honesty of physicians, to pay four dollars for a medical journal worth *only* eighty cents, but free from the taint of nostrum domination and influence, than to get for eighty cents a journal costing the publisher four dollars, the other three dollars and twenty cents necessary to its maintenance having been paid by the nostrum interests.

> "The independent medical journal must obtain a market by force of merit, only."

Yes, by force of merit of a kind — merit as defined by nostrum advertisers. The great majority of so-called independent medical journals today are sold to the profession at a cost far below that of actual production. Obviously, the advertisers and not the subscribers are the controlling element in the production of such journals. It is not strange, then, that in such cases the editor jumps to the crack of the advertiser's whip. To call such medical journals "independent" is to play tricks with the English language. The only "force of merit" that such journals need to "obtain a market" is the questionable merit of suave subserviency to those that support it — the advertisers!

> "The editor [of the "independent" journal] can go about his task unafraid of all things save his own inefficiency, and can be true to his own ideals without a continually haunting fear of incurring the displeasure of some powerful clique and losing his position, through the failure to do the bidding of aught save the truth."

The "unafraidness" of most of the editors of so-called independent medical journals is really a contempt for the wishes and opinions of the medical profession and a deadly dread of incurring the displeasure of the advertiser. How many so-called independent medical journals will discuss, without fear or favor, problems that may involve products which they advertise? They may be counted on the fingers of one hand! Not long ago the "unafraid" editor of one "independent" medical journal published a tabulated list of nostrums which the government had declared false and fraudulent, overlooking the fact that in the same issue of his journal he was carrying a half-page advertisement of one of the nostrums listed. He demonstrated his "unafraidness" by publishing in the next issue of his journal an apology — not to the medical profession, but to the advertiser of the nostrum in question! "Whose bread I eat, his song I sing!"

> "Let us turn now to consider those elements of the privately owned journals which seem to offer the best guarantee for freedom and efficiency in the medical press. In the first place, its financial and professional success depend wholly on its ability to meet the need of the profession. Its excellence and its real scientific value to the medical world are its only assets. It has no artificial subscription list. No physician is allowed to purchase it, and its management is forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve. To put the matter squarely, it must win its life through service, and service not only to the whole profession but also to mankind."

So the "only assets" of the so-called independent medical journal are its "excellence and its real scientific value to the medical world"? This sounds well and falls trippingly from the tongue. When, however, one attempts to appraise the "scientific value" of such publications as the *Medical Standard* — mouthpiece of the proprietary interests — and the "excellence" of the *Medical Brief,* one realizes that such a panegyric is as sounding brass and a tinkling cymbal.

Further, we are asked to believe that the "independent" medical journal has "no artificial subscription list" and it is "forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve." Yet, we have in our files letters written on the stationery of the *Charlotte Medical Journal,* signed by its editor, that were sent to physicians in different parts of the country, reading in part as follows:

> "I appreciate very much your style of writing and, if you will pardon me, I believe I will make you this proposition: If you will send me four typewritten editorials of about five hundred words each, to be used unsigned, I will send you the *Charlotte Medical Journal* for four years."

It will be remembered that The Journal of October 11, 1913, published some correspondence showing another method of "subscription-boosting" on the part of this same "independent" journal. In this case the letter, written to the physician, read in part:

> "If you will send me an article for the journal I will be glad to publish same and will place your name on my complimentary mailing list."

Not that these methods are peculiar to the *Charlotte Medical Journal.* By no means; they are common among "privately owned journals." In view of these facts it is impossible to take seriously the claim that the independent medical journal has "no artificial subscription list." Incidentally, what is the scientific value of a journal that offers to accept for publication articles before these are written and in obvious ignorance of their scientific value?

> "The privately owned medical journal is without the power to oppress."

Literally, yes; substantially, no. The worst tyranny is that which, under a fair-seeming exterior, corrupts and demoralizes. The typical so-called independent medical journal may not oppress in the literal sense of the word — it debauches. In the history of modern medicine no one thing, not even the low-grade, privately owned medical college, has done so much to debase the science of medicine, to subordinate therapeutics to proprietary interests and insidiously to lower the ethical and scientific standards of the profession, as the so-called independent medical journal.

> "Let me say that the nation-wide movement for pure advertising that has become such a distinct characteristic of present-day journalism began in, and was fought most energetically by privately owned, weekly and monthly medical periodicals. I cannot find that a single political, official organ raised its voice in favor of the war against quack advertising and impure foods until the fight had, practically, been won by the independent journals. This fact alone should close the mouth of those who contend that a free, independent journal of any kind is incapable of purifying its advertising columns."

One can only stand aghast at the frame of mind that permits the advancement of such a perversion of facts as argument. All that can be done is categorically to deny. If the history of American medical journalism proves anything, it demonstrates that the fight against the nostrum evil within the profession, that is, against misleading and fraudulent advertising in medical journals, was originated and carried forward wholly by the organized medical profession and by that part of the medical press that has been owned by the profession. There may have been isolated instances of privately owned medical journals making a pretense of exposing fraud in the proprietary medicine world with the motive of dragooning proprietary medicine manufacturers into advertising in such journals as the price of silence. It is but fair to say that the bulk of independent medical journals has not descended to this cowardly form of journalistic blackmail. Most of them have frankly and openly ignored the subject and have simply accepted such advertising largess as might come their way. It is true that some privately owned journals vociferate against quacks and "patent medicines"; neither of these are sources of advertising income! Against the more insidious nostrums that are offered to physicians under the guise of "proprietaries," no protest ever appears except in such medical journals as are owned and controlled by the medical profession.

Dr. Register hits the nail on the head when he says "I am well aware that this debate really centers itself in the question of censorship of advertisements." It does. And the journals that censor their advertisements with an eye single to the best interests of scientific medicine and the safety of the public are those whose continued existence does not depend on the financial support derived from nostrum advertising. As was suggested at the outset, the address on "The Freedom of the Medical Press" is a plea, not for freedom, but for license. Slowly but surely the medical profession is awakening to the fact that it has been, and still is, shamefully exploited by the proprietary medicine interests. Physicians are beginning to realize that the last stronghold of the nostrum interests is the advertising pages of the nostrum-controlled medical journal. Even this defense is crumbling. Medical men are learning that they cannot eat their cake and have it; they cannot expect medical journals that are supported by the nostrum interests to reflect professional ideals. The advertising standards of the typical privately owned medical journal are lower than the advertising standards of the better class lay magazines and of the more progressive newspapers. A publication is no cleaner than its dirtiest page.

It must be understood that The Journal is not opposed to independent medical journalism *per se*. It has in the past given, and will in the future give, specific credit to privately owned medical journals free from the domination of the nostrum interests. No greater inspiration for American medicine can be imagined than the establishment of fearless, high-class, privately owned medical journals with breadth of vision and a willingness to fight for principles. A weekly journal of this type is especially to be desired; none would welcome its advent more heartily than The Journal.

THE VENEREAL DISEASE PROBLEM—IV

Western Australia's Effort to Control the Venereal Diseases

The government of Western Australia by an amendment to its health act which went into effect, Dec. 8, 1915, established a public system for the diagnosis and treatment of the venereal diseases which is similar in outline to that established in England.[1] It is a measure based on the principle of controlling the venereal diseases by attending to their treatment until after they have passed the contagious stage. But it goes much farther in this direction than any other act thus far put into force. It does not simply offer facilities for treatment. It operates on the assumption that, for the good of the community, the person with venereal disease must submit to treatment until he is free from contagion, and it proposes to see to it that he does this.

On developing a venereal disease, a person, within three days, must go to a qualified practitioner for treatment. If he fails to seek treatment immediately he will be fined £20 or imprisoned. The physician must report to the health officials the age and the sex of the patient and a diagnosis of his condition, but not the name or address. The patient is to return for treatment at least once a month; penalty for failure, £20 or imprisonment. If he remains away from treatment for six weeks the physician, under heavy penalty, must notify the health authorities, giving this time the patient's name and address, and the health authorities must bring the patient into court and compel him to have treatment. The patient may change his physician, but on doing this he must disclose the name of his previous physician, who must be notified by the second physician that the patient is now under treatment by the latter. Treatment must be continued until the patient can obtain a satisfactory certificate of cure; penalty for failure, £50 or imprisonment. The health boards have authority to apprehend any person suspected of having a venereal disease which is not being treated, and to compel him to submit to examination by qualified physicians and to obtain a certificate of health, or to submit to treatment until such certificate can be obtained.

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[1] The Venereal Disease Problem—I, editorial, The Journal A. M. A., Feb. 3, 1917, p. 375; II, Recommendations of the Royal Commission on Venereal Diseases, Feb. 10, 1917, p. 463; III, The English Venereal Disease Act, Feb. 17, 1917, p. 550.

The measure takes ample precaution to prevent the treatment of venereal diseases by any person other than a qualified physician. It stops absolutely the advertising, the circulation or the sale of medicines intended for the venereal diseases, or of literature bearing in any way on their treatment. An important provision of the act looks to the protection of the secret of the patients by making private all legal procedures which have to do with the enforcement of the provisions of the act. Newspapers are prohibited under heavy penalties from publishing any reference to such legal proceedings. Every provision of the act is guarded by heavy penalties. It is evidently intended that it shall be enforced, and that infringement of it in any particular shall be an offense which nobody will commit lightly.

So far as we know, this Australian act is the most drastic which has been put into force against the venereal diseases. While drastic, it is as logical, as practical and as just an enactment as can be established against the venereal diseases, under the present state of public opinion. It makes every provision possible to protect the patient's secret. It does not take the step, urged in much less radical programs, of giving even anonymous notification in the case of venereal diseases. It requires the return of neither the patient's name nor his address. The whole proposition is that for the good of the community the venereal patient shall be treated by a person qualified to treat him until he is free from danger to others. He can choose his own physician, but the physician must see to it that treatment is kept up, and the physician will be held responsible for attending to this. As long as the patient continues treatment he will keep out of the hands of the board of health and the legal authorities. If he does not do this, he falls afoul of the law; he is reported to the health authorities, and they are empowered to see to it that he lives up to his public responsibility of not remaining a danger to the community.

Western Australia, before anybody else, has taken the two essential steps toward the solution of the venereal problem. First, it has recognized the importance of universal, prompt treatment of venereal diseases as the most efficient measure toward their control. Secondly, it has had the wisdom and—what is unique—the courage to make laws compelling venereal patients to have treatment. If as much intelligence and courage are used in enforcing the act as were used in its enactment, there can be no doubt that an attack in large part successful will be made on the venereal diseases in that province. Australia and New Zealand seem to resemble some of our Western states in their radicalism, which is a would-be offensive name for the intelligence and willingness to act logically on social problems. This law probably represents the highest degree of intelligence that has yet been applied by a state to the venereal problem. It is too much to hope now for such a law in this country, but probably before long the Western Australia law will provide a pattern for enactments elsewhere—perhaps in some of our states.

It may be repeated that the Western Australian act has the great virtue of compelling patients with venereal diseases to submit to treatment until they are no longer a menace to others. At the same time it is a law which has not the objections of notification. It protects the patient's secret, if he does his part and submits to treatment. Even if he does not do this, it protects his secret as far as possible by making all legal proceedings under the act private. But it wastes no great amount of sympathy on the miscreant who is indifferent to his duties in getting himself cured.

RECENT OBSERVATIONS ON TYPHUS FEVER

Naturally the occurrence of typhus fever on a large scale in some of the countries engaged in war has aroused much interest in the cause and prevention of this disease. Most physicians are familiar with the measures used for preventing typhus infection by destruction of the body louse. At this time attention is directed to observations bearing directly on the primary cause of typhus fever. Some time ago Plotz described a bacillus, *B. typhi-exanthematici,* which he cultivated from the blood of a patient with the mild form of typhus — Brill's disease — occurring in New York, and also from the blood of immigrants with typical epidemic typhus. Now the bacteriologic study of the blood has been extended to the disease as it occurs in the Balkans and Russia, as well as in Mexico, blood cultures on typhus patients in these countries in a large percentage of cases revealing the presence of *B. typhi-exanthematici.* In Mexico, Olitsky, Denzer and Husk[1] obtained the bacillus in most of the cases studied, the bacilli being most numerous in the early stages of the attack and in the most severe forms of the disease. They found the blood of the typhus patients whom they studied to be infectious for guinea-pigs, and recovered the bacillus from the spleen of guinea-pigs infected with typhus blood or by means of lice from typhus patients. They also assert that they have obtained the bacillus from lice from typhus patients; but when so isolated the bacillus is gram-negative, becoming, however, gram-positive on subculture. Baehr and Plotz,[2] who made the investigations in the Balkans and Russia, obtained cultures of the bacillus from the blood in nineteen of forty patients in Serbia and Bulgaria, while in Russia and Galicia, where the conditions were more favorable, the cultures were positive in nineteen of twenty-four cases. They were able to show that the bacillus is present in the blood during the entire course of the fever from the first day on, and that the more severe the disease the more marked the bacteremia. In two cases in which cultures were made during the initial chill, the blood contained enormous numbers of bacilli; in one case ninety-one colonies developed to each cubic centimeter of blood inoculated.

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[1] Olitsky, Denzer and Husk: Jour. Infect. Dis., 1917, **19**, 811.
[2] Baehr and Plotz: Jour. Infect. Dis., 1917, **19**, 201.

The results obtained so far from blood cultures show, then, that the bacillus described by Plotz appears to be present in the blood in the febrile period of typhus fever as it occurs in the United States (Brill's disease and epidemic typhus), Mexico, Serbia, Bulgaria, Austria and Russia, and certainly the intimate association of this bacillus with typhus fever would seem to be established clearly enough. It is a matter of regret, however, that, owing to the prevailing conditions in the countries in which the disease now is epidemic, it has not been possible to carry on still more extended investigations on this important bacillus, more particularly in the line of prophylactic inoculations, which, so far as the results at hand appear to indicate, may be of great value. The agglutinins for *B. typhi-exanthematici* first appear at about the time of the crisis and describe a typical immunity curve.

An exceedingly interesting development in the typhus work is the demonstration of Prowazek, Rocha-Lima,[3] and Toepfer and Schüssler[4] that lice which have bitten typhus patients in the febrile stages of the attack contain large numbers of peculiar minute bodies, especially in the epithelial cells of the digestive tract. In Giemsa preparations these bodies are reddish, short, elliptic and coccus-like, sometimes with polar staining. It may be recalled that Ricketts and Wilder also described rods with polar bodies in lice infected with typhus fever,[5] and Rocha-Lima has given these bodies the designation *Rickettsia prowazeki.* So far these bodies have been found only in lice which have been picked up from typhus fever patients or from their clothes or from other sources, and placed on typhus fever patients and allowed to bite them. Early in the attack there are only a few infected lice found on the typhus patient under natural conditions, but as the attack progresses the number increases and in the early stages of convalescence most of the lice found are said to contain the bodies. Experiments appear to show practically the same conditions; that is to say, early in the disease the lice must be left in contact with the patient longer before the bodies develop to any extent; but toward the ninth day or so, only a short time, even a single bite suffices. When convalescence has set in it is impossible to secure the development of the bodies by letting lice bite the patients. As stated, the bodies are absent in lice obtained from healthy persons and from persons suffering with diseases other than typhus fever; hence the presence of such bodies in a number of lice obtained in suspected cases of typhus fever is said to be sufficient to make the diagnosis of typhus.[6] Toepfer and Schüssler state that abortive cases of typhus fever give rise to a rich development of *Rickettsia* in lice. Lice containing them are infectious for guinea-pigs; that is to say, when guinea-pigs are injected with suspensions of crushed bodies of such lice, they develop the febrile reaction which is regarded as characteristic of typhus infection in guinea-pigs. Rocha-Lima was unable to obtain growths of the bodies in the mediums employed by Plotz to grow *B. typhi-exanthematici,* and he also found only a superficial similarity between the Plotz bacillus and *Rickettsia,* the bacillus being larger and gram-positive, whereas the bodies are gram-negative; but Baehr and Plotz appear to regard the bodies as identical with the bacillus, and Olitsky, Denzer and Husk report the successful isolation of the Plotz bacillus from typhus lice.

Nicolle is an investigator of typhus fever who holds that we are still ignorant of the actual cause of the disease. In his experimental work he employs what he calls typhus virus, by which is meant virulent emulsions of the spleen and other organs of typhus-infected guinea-pigs. His most recent work deals with the production of an antityphus serum.[7] The serum from typhus convalescents having been found to possess specific preventive properties, he assumed that the typhus virus would serve as antigen. Accordingly, asses were injected intravenously with emulsions of leukocytes of infected guinea-pigs, and then many times with emulsions of spleen. The serum was found to acquire antityphus properties, being preventive as well as curative in guinea-pigs, and the Tunisian investigators even claim that the serum has given favorable results in human typhus, the death rate in a series of serum-treated cases being much reduced as compared with the ordinary death rate. By means of suitable immunity tests, Nicolle shows that Algerian, Moroccan and Balkan typhus viruses appear to be identical.[8] These apparently significant results are not of necessity inconsistent with the view that the bacillus described by Plotz is the cause of typhus, as this bacillus has been found in the blood and organs of guinea-pigs infected with typhus and consequently may have been the actual agent of immunization. If that is the case, immunization with the bacillus itself should give the same or even better results. At all events it is clear enough that still further work will be required to settle all the questions as to the causation of typhus, even though great progress has been made.

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[3] Rocha-Lima: Deutsch. med. Wchnschr., 1916, **42**, 1353; München. med. Wchnschr., 1916, **63**, 1381.

[4] Toepfer and Schüssler: Deutsch. med. Wchnschr., 1916, **42**, 1157.

[5] Ricketts, H. T., and Wilder, R. M.: The Etiology of the Typhus Fever (Tabardillo) of Mexico City, The Journal A. M. A., April 23, 1910, p. 1373.

[6] Otto: Med. Klin., 1916, **12**, 1143.

[7] Nicolle and Blaizot: Ann. de l'Inst. Pasteur, 1916, **30**, 446.

[8] Nicolle: Arch. Pasteur Inst. of Tunis, 1916, **9**, 215.

Current Comment

SARGOL CONCERN FINED $30,000

On February 17, 1917, Wylie B. Jones and Herbert E. Woodward, the two men convicted of fraud in the exploitation of Sargol, were fined $30,000, Jones having to pay $20,000 and Woodward the balance. Both fines were paid and the defendants waived their right to appeal and agreed to have the Sargol Company go out of business. Thirty thousand dollars is not a large amount to be assessed against men who have defrauded the public of millions. The fact, however, that these individuals but narrowly escaped going to the federal penitentiary and were undoubtedly put to no small additional expense in attempting to defend their nefarious business will have a wholesomely deterrent effect on other mail-order medical fakers.

NUXATED IRON FOR THAT TIRED FEELING

Is there to be a Renaissance of the testimonial epoch? Ten or fifteen years ago the testimonial industry was at its height, especially as it is applied to medicinal products. Every "patent medicine," however quackish, was able to publish testimonials from persons whose position, if not their intelligence, should have made them hesitate to give such endorsements. Those were the days when "Peruna" published panegyrics from such notables as Admiral Schley, Rear-Admiral Hichborn, Julia Marlowe, etc., when the praises of "Duffy's Malt Whiskey" were declaimed by Sarah Bernhardt, the virtues of "Fahrney's Blood Vitalizer" sung by Schumann-Heink, and the attributes of "Electric Bitters" immortalized by Champ Clark. Those were the happy days of the "patent medicine" vendor. Neither should it be forgotten that the writing of testimonials for the so-called "ethical proprietaries" had become an ingrown habit with the medical profession. Then the light was turned on. Lay magazines exposed the fraud and viciousness of the "patent medicine" business, while The Journal demonstrated by numerous examples that a large proportion of the proprietary medicines sold for physicians' prescriptions were little, if any, better, than the "patent medicines." Gradually, testimonial writing became unpopular, at least among the intelligent portion of the population. Physicians virtually abandoned the practice, while among laymen it gradually became confined to the ignorant and credulous. Recently there have been indications that the habit is being reestablished. Hence, the question with which this comment begins. Our readers will remember that Mr. Jess Willard credits "Nuxated Iron"[1] for his victory over Mr. Jack Johnson, while Mr. Ty Cobb declares, in very black type, that this panacea is responsible for his "winning" qualities. Now comes the Hon. William E. Mason, former United States senator, now congressman-elect from Illinois, advising the people of the United States that "Nuxated Iron Should Be Made Known to Every Nervous, Run-down, Anemic Man, Woman and Child." This is the same Mr. Mason whose name appeared as "General Counsel" of the "International Institute for the Treatment of Tuberculosis" operated by the "rupture-dope-dyspepsia-consumption-curer," O. E. Miller. When The Journal called Mr. Mason's attention to the questionable company in which his name appeared he pleaded ignorance of the nature of the "Institute" and withdrew from it. Doubtless when his attention is called to the "Nuxated Iron" quackery, he will ask those who are responsible for the quarter-page advertisement now appearing in the newspapers to return his photograph and testimonial. Congressman Mason testifies that he had suffered greatly from "that horrible tired feeling." After reading the testimonial, those holding old-fashioned ideas of the dignity and intelligence that should characterize the House of Representatives will appreciate just what a "tired feeling" means.

A CLEVER RUSE IN DIETARY REFORM

Among the difficulties sometimes encountered in the administration of any health propaganda is the persistent demand of custom and habit for recognition in any plan of procedure adopted. There are some persons who are afflicted with a stubborn respect for usage which apparently prevents them from accepting anything new — not to say voluntarily adopting an innovation — in their life routine without a severe mental struggle. The time of meals, the mode of dress, the hours of work and innumerable other incidents of daily experience are looked on as permanently fixed. Any proposed violation of the traditional regimen is viewed almost as a sacrilege. Many of the wholesome and common foods of life have their "personal enemies based on dietetic prejudices which are largely imaginary." These must always be reckoned with by every reformer who hopes to win success for his plans. There is usually more than one way of routing an enemy. Sometimes the favorable mode of attack is a direct one; in other instances a circuitous approach may furnish an easier path to victory. An illustration of the application of the latter plan of campaign is the carefully studied luncheon service of a large American corporation. In its Cleveland factory a charge of 6 cents is made for a cup of coffee, because the corporation believes that coffee is not a healthy and nourishing beverage for its employees, at least for the young women; but certified, sweet milk, attractively served, is sold for 2 cents, or less than the wholesale price, because the employers believe that milk is preferable to coffee as a beverage. The same care is exercised in the preparation and service of the rest of the menu. Coaxing the appetite by the device of a bargain in foods is not an entirely novel scheme. Sometimes it is purposely planned by the dietitian; usually, however, it is the device of the purveyor. In the case just cited it may be urged by some that such insidious schemes are objectionable because milk is not well tolerated by every one. This contention is rapidly being abandoned. "Any one can take milk" is the sane comment of a recent writer.[1] "If a person tells me, 'I cannot take milk,' I always say, 'You can if you will take it in a certain way.' It is a question usually of flavoring it aright or of taking it like soup, with a spoon, with a bite of some carbohydrate substance, cracker or bread, between the sips. I do not think everybody must take milk, but I think everybody can."

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[1] The Journal A. M. A., Oct. 21, 1916, p. 1244; also, editorial comments, "Sporting Note," Oct. 28, 1916, p. 1309, and "Science Note," Nov. 4, 1916, p. 1376.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

FLORIDA

Personal.—Dr. Charles E. Terry, formerly health officer of Jacksonville, has gone to New York to assume charge of the health department of the *Delineator.*——Dr. Henry Hanson has been elected health officer of Jacksonville.

IDAHO

State Board Election.—The state board of health has elected Dr. William R. Hamilton, Weiser, president, and Dr. Edward T. Biwer, Boise, secretary.——Dr. Ellis Kackley, Soda Springs, has been appointed a member of the state board of health, succeeding Dr. Oscar B. Steely, Pocatello, resigned.

ILLINOIS

Society Joins Red Cross.—The Peoria Medical Society at its meeting, February 6, unanimously voted to join the Peoria Chapter of the American Red Cross.

Personal.—The house of Dr. James H. Oughton, Dwight, was destroyed by fire, February 11.——Dr. Karl F. Snyder has been elected president of the Freeport Club.

Paralysis Conference.—A conference of physicians under the auspices of the state board of health was held at St. John's Hospital, Springfield, February 20 to 23, to study the treatment of children suffering from infantile paralysis. A clinic was also held. This is the first of a series of clinics to be held in twenty-eight towns and cities in the state.

Epidemic Diseases.—On account of the prevalence of scarlet fever in Winchester, a proclamation has been issued suspending all public gatherings.——The public schools of Alexis have been closed on account of scarlet fever.——Smallpox has appeared in Belvidere, where eight cases have been reported. The moving picture shows and churches of the city have been closed.——February 3, Dr. Charles W. Miller, Peoria, discovered ten cases of smallpox in one family.

Chicago

Mrs. Ryerson Offers Summer Home.—The board of directors of the Children's Memorial Hospital voted to accept, February 12, the offer of Mrs. Arthur Ryerson of the use of her home during the summer for convalescent children.

Institute of Medicine.—At a meeting of the Institute of Medicine of Chicago, February 22, Dr. Horatio B. Williams of Columbia University, New York, delivered an illustrated address on "Electrocardiography and its Applications to Medicine."

New Base Hospital Unit.—A number of physicians headed by Drs. J. Rawson Pennington and Charles H. Parkes are organizing a base hospital unit with headquarters at the Sheridan Park Hospital. Dr. Clarence L. Wheaton has been selected as adjutant.

Army Medical Officers.—The Illinois Division of the Medical Reserve Corps has issued an appeal to recent graduates of medical schools who have had a hospital internship to consider entering the medical service of the army or navy. There are at present, or soon will be, 500 vacancies in the medical corps of the army and navy.

Personal.—Dr. Arthur F. Schuettler was held up and robbed of a watch, diamond pin, money and a case of surgical instruments near his home, February 17.——Dr. Harry C. Rolnick has returned after several months' duty in military hospitals on the Rhine and in Western Prussia and Bohemia.——Dr. and Mrs. E. Wyllys Andrews left for Florida, February 8.

Hospitals Buy Land.—Michael Reese Hospital has purchased, from the estate of William M. McClintock, property on Lake Park Avenue, 50 by 92 feet, adjoining the hospital, for $18,000.——The Beulah Home and Maternity Hospital has purchased property on North Clark Street, near Webster, 40 by 50 feet, for $14,000.

Ambulance Transfers to American Service.—Sixty-five students of the University of Chicago who have enrolled for service with the American Ambulance in Paris have transferred their service to the American Ambulance Corps which is being organized. The corps will be connected with one of the four base hospitals in Chicago, and will be under the charge of Dr. H. Wernicke Gentles.

Prevention of Infantile Paralysis.—The health officials, philanthropic workers, physicians and nurses of Chicago and its suburbs have organized an association for the prevention of infantile paralysis. Health Commissioner Robertson is president of the association; Mrs. Harlan Ward Cooley, vice chairman, and Dr. Willis O. Nance, secretary.

Deaths from Contagious Diseases.—According to the *Bulletin of the Chicago School of Sanitary Instruction,* Feb. 10, 1917, in 1916 there were only forty-nine cases of smallpox in the city, with no deaths. There were 8,732 cases of measles and 130 deaths; 8,681 cases of scarlet fever with 160 deaths, and 6,980 cases of diphtheria and 785 deaths. In January, 1917, there were 1,734 cases of scarlet fever with 68 deaths; 948 cases of diphtheria and 135 deaths, and 1,222 cases of measles with 22 deaths. In 1916 the death rate from measles almost equalled that of scarlet fever.

Tuberculosis Study.—A systematic course of lectures intended for those interested in tuberculosis problems will be given on Thursday evenings of March at the City Club of Chicago from 6:30 to 7:30 p. m., under the auspices of the Chicago Tuberculosis Institute. The class will be known as the Theodore B. Sachs Tuberculosis Study Class, and the following subjects will be considered:

March 1: "How the Visiting Nurse can Aid in the Discovery of Tuberculosis"; "Home Instruction by the Nurse," Edna M. Foley.

March 8: "Cook County Welfare Department and the Tuberculosis Problem," Mrs. Gertrude Howe Britton.

March 15: "What may Lead the Layman to Suspect Tuberculosis"; "The Return Sanatorium Patient"; "How to Deal with the Tuberculosis Carrier," Dr. Charles Segal.

March 22: "Crippled Children and Tuberculosis," Dr. Edwin W. Ryerson,

March 29: "The Results of the Tuberculosis Survey," Dr. Clarence L. Wheaton. "Incidental Problems of the Survey," Dr. John Ritter.

LOUISIANA

Clinic Dedicated.—The Corinne Casanas Free Clinic connected with the Presbyterian Hospital, New Orleans, was formally dedicated, January 16.

Medical Society Gives Concert.—A society event of New Orleans, January 27, was the concert given at the Athenaeum by the Orleans Parish Medical Society for the benefit of its building fund.

Mayo in New Orleans.—Dr. Charles H. Mayo, Rochester, Minn., delivered a lecture, January 20, in the theater of the Charity Hospital on "Cancerous Growths and Operation on Cancer of the Intestines."

Physician Found Guilty.—The Louisiana State Board of Medical Examiners reports that Dr. Emory W. Reeves, who had previously been refused a license to practice medicine, has been found guilty in the Federal Court of violating the Harrison Narcotic Law.

State Health Board Election.—The Louisiana State Board of Health has reelected Dr. Oscar Dowling, Shreveport, president, and has elected Dr. J. M. Mosely, Arcadia, vice president, and Dr. Merrick W. Swords, New Orleans, secretary. Dr. John H. Ellis, Kentwood, has been appointed registrar of vital statistics. Dr. Henry B. White, Gueydan, has been retained as medical inspector of the board, and Miss Agnes Morris has been appointed instructor in school hygiene.

Personal.—Dr. Frederick H. Parham, New Orleans, is reported to be ill with appendicitis in Touro Infirmary.——Dr. William M. Perkins, retired secretary of the state board of health, has been presented with a gold watch by his friends and associates on the board.——Dr. Charles A. Schilling, Abbeville, has been elected superintendent of the State Baptist Orphanage, Lake Charles.——Dr. William H. Robin has been reelected secretary of the New Orleans Board of Health,

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1. Cabot, R. C.: A Layman's Handbook of Medicine, 1916, p. 115.

Dr. Paul Gilpin, inspector of communicable diseases, and Dr. Abraham L. Metz, bacteriologist.

MARYLAND

Workers' Health Under State Care.—The state bureau of labor and statistics has taken up the investigation and inspection of factories and factory workers, with a view to checking occupational diseases.

Rest Room for Women at Hopkins.—A women students' rest room, dedicated to the late Mary Elizabeth Garrett, is being constructed just off the corridor of the main hospital building at the Johns Hopkins Hospital. The women medical students, the women alumnae and the women resident physicians planned and financed the project. The building will contain thirty-seven lockers and two dressing alcoves.

Alumni Provide for Annual Deficit.—The general alumni association and the alumni council of Johns Hopkins University have begun a campaign among the 4,000 graduates to raise half a million dollars, the income of which is to be used for the next three years to apply to the annual deficit of the university. The trustees and friends of the university have subscribed $70,000 a year for the three years, and the alumni have promised to raise $20,000, also a definite sum for laboratories, additional facilities for research work, dormitories and a gymnasium.

MASSACHUSETTS

New Medical Organization.—The Physicians Club of Worcester has been organized with Dr. Clarence F. Desmond as president and Dr. Max Baff as secretary.

New Hospital for Adams.—Mr. William B. Plunkett, a prominent cotton manufacturer of Adams, will erect and equip a hospital which he will present to the town of Adams.

New Officers Elected.—At the meeting of the Boston Society for Medical Improvement, January 29, Dr. Abner Post, Boston, was elected president, and Dr. George Clymer, Boston, secretary-treasurer of the society.

Japanese Physicians Visit Boston.—Drs. W. Ocacka, Y. Honda and Okada, members of the faculty of the Imperial University, Tokyo, Japan, were guests at Forsyth Day at the Dental Infirmary, Boston, January 20.

State Health Officers Meet.—At the annual meeting of the boards of health, held in Boston, January 25, under the presidency of Dr. Frank A. Woods, Holyoke, papers were read by Dr. Donald B. Armstrong, New York, on "The Framingham Health and Tuberculosis Demonstration," and by Dr. Thomas F. Harrington, on "Industrial Health." The following officers were elected: president, Dr. Francis X. Mahoney, Boston; vice presidents, Drs. John S. Hitchcock, Northampton, and William G. Kirseelbaum, New Bedford; secretary, Dr. Francis H. Stack, Boston, and treasurer, Dr. Francis G. Curtis, Newton.

Fellowship for Public Health Men.—Harvard Medical School, in cooperation with the Boston Dispensary, offers a fellowship to graduates in medicine who desire to pursue a course of study leading to the certificate of public health in the school for health officers, or to the degree of Doctor of Public Health in the department of preventive medicine and hygiene. Fellows are required to give half their time to the treatment and supervision of the sick in their homes, in a district of the city of Boston, and half their time to study or research at the Harvard Medical School. Appointments may be made for one or two years. The stipend is $750 per year. Applications stating previous experience, references, etc., should be made to Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard Medical School, Boston.

Personal.—Dr. Morton Snow, Springfield, formerly of Chicago, was elected a medical director of the Massachusetts Mutual Life Insurance Company at the sixty-fifth annual meeting, February 6.——Dr. William T. Porter, Boston, has returned after several months on the western war front.——Dr. Henry S. Rowen has been elected a trustee of the Boston City Hospital, succeeding Dr. Francis J. Keany, deceased.——Dr. Howard A. Streeter, Marblehead, has been appointed district health officer for the Berkshire District, succeeding Dr. Stanley H. Osborn, who has been appointed epidemiologist.——Dr. William owe Merrill, Lawrence, has been appointed a member of the board of trustees of the Danvers Hospital.——Dr. Herbert B. Howard, Boston, has been appointed a trustee of the Gardner State Colony.——Dr. William L. Richardson, Boston, has been elected a trustee of the Perkins Institution and School for the Blind, Boston.

MISSOURI

Tuberculosis.—The Jasper County Tuberculosis Sanatorium will be ready for occupancy, June 1.

Personal.—Dr. Hardy D. Havard, St. Louis, sailed for Europe for service with the British troops on the western war front.

Dinner to Lester Hall.—An anniversary dinner is to be given, March 10, at the Hotel Baltimore, Kansas City, under the official sanction of the Jackson County Medical Society and the Kansas City Medical Association, with the cooperation of the officials of the Missouri State Medical Association, in honor of Dr. C. Lester Hall, on the occasion of his completion of fifty years in the practice of medicine.

St. Louis

St. Louis Unit Defers Trip Abroad.—The St. Louis Unit of the American Physicians' Expedition Committee has indefinitely postponed its proposed trip to Germany, as the members considered that their first duty is to the United States.

Personal.—Dr. Hartwell N. Lyon, who has been seriously ill at the Barnes Hospital, is now reported to be out of danger.——Dr. Scott Heuer has returned after a term of service with the American Ambulance in Paris.——Dr. Fred T. Murphy delivered a lecture at the Washington University Medical School, February 6, on "The Methods of Treating Wounds," illustrated with stereopticon slides showing the character of wounds made on European battlefields.

MONTANA

Personal.—Dr. Carl F. Easton has resigned as city chemist of Butte, and has been succeeded by Mr. F. M. Harris.

Hospital Addition.—The addition to the Deaconess Hospital, Great Falls, which has been built at a cost of about $100,000, will be ready for occupancy next month.

NEW YORK

To Transfer Quarantine.—A concurrent resolution was adopted by the legislature, February 15, recommending the transfer of the New York Quarantine Station from the state to the federal government. The resolution calls on the New York members of Congress to support a measure appropriating $1,395,275 by July 1 to reimburse the state and take over the plant now utilized by the health officer of the port.

Personal.—Dr. Charles C. Sweet, Ossining, has been appointed temporarily to succeed Dr. Thomas J. Barry as physician and surgeon of Sing Sing. The attorney general has ruled that Dr. Barry's Tennessee license to practice medicine does not entitle him to practice medicine in the prison of this state.——Dr. Edward G. Whipple, medical director of the Rochester Public Health Association, has resigned.——Dr. Waldon E. Munz has been made assistant city bacteriologist of Rochester, succeeding Dr. William L. Culpepper, resigned to accept a position at the Rockefeller Institute.

New York City

Long Island College Hospital to Be Coeducational.—The Faculty of the Long Island College Hospital has voted to make the college coeducational.

New Hospital Open for Babies.—The new home of the St. Christopher Hospital for Babies, Brooklyn, has been opened for inspection. The building provides eighty-five beds, and has the full equipment of a modern hospital.

Investigate Illness Among Negroes.—On February 17, over 400 nurses of the department of health made a house to house visit in the colored districts of Manhattan for the purpose of gaining information which will aid in improving the health of colored people.

Denounce Health Insurance.—At a meeting of the Central Federated Union, February 16, James P. Holland, president of the State Federation of Labor, and Francis X. Sullivan, counsel of the organization, denounced the Mills Bill for health insurance.

Work of Babies' Welfare Association.—The annual report of the Babies' Welfare Association shows that more than 59,000 babies less than 2 years old were reached during the year 1916 by the milk stations of the association. The department of health served 48,302 of these, the diet kitchen 6,432, and the Straus milk stations 3,986. There are seventy-eight milk stations under the direction of the association.

Personal.—Major J. Richard Kevin, M. C., N. G., N. Y., assigned to the Twenty-Third Infantry, and Lieut. Edward H. Marsh, M. C., N. G., N. Y., assigned to the Fourteenth Infantry, have resigned.——A news item in THE JOURNAL, February 10, p. 470, is incorrect. Dr. Samuel M. Strong has been appointed president of the staff of the Flushing Hospital, and Dr. Charles B. Story is surgeon in chief of the institution.

Lectures on the Prevention of Disease.—The course of free lectures given under the auspices of the public health education committee of the Medical Society of the County of New York began, February 5, and will be given weekly until March 29. The subject on February 6 was "The Relation Between Diseased Teeth and General Body Infection." The subject on February 15 was "Dietetics." Other subjects announced are as follows:

SURVEY OF INFANTILE PARALYSIS

Wednesday, February 21, 8:15 p. m.:
"The Disease and Its Early Recognition," Genevieve Wilson, M.D.
"Treatment and After-Care," Henry W. Frauenthal, M.D.
"What the Recent Epidemic Has Taught Us," Haven Emerson, M.D.

NEW PRACTICAL METHODS IN CHILD HYGIENE

Thursday, March 1, 3:30 p. m.:
"How We Prevent Diphtheria," Anna I. von Sholly, M.D.
"Results Obtained in Experimental Hygiene," Miner C. Hill, M.D.
"Parental Care," Josephine Hemenway Kenyon, M.D.

NORTH CAROLINA

New District Officers.—At the annual meeting of the Third District Medical Society, at Wilmington, Dr. Tilton V. Moore, Acme, was elected president; Dr. Gabe H. Croom, Wilmington, vice president, and Dr. James B. Sidbury, Wilmington, secretary-treasurer (reelected).

Bennett Bill a Law.—The Bennett Bill has passed both houses of the legislature and is now a law. It constitutes the offering for sale, sale, or advertising of any remedy purporting to cure cancer, paralysis, consumption, diabetes, Bright's disease, "or any other disease for which no cure has been found," or "any mechanical device for the treatment of diseases when the North Carolina State Board of Health shall declare that such device is without value in the treatment of diseases," a misdemeanor, punishable by a fine not exceeding $100 for each offense. It is made the duty of registered pharmacists to report such sales to the State Board of Pharmacy on penalty of forfeiture of their pharmacy license.

OHIO

Barberton Asks Help.—The Barberton Board of Health has asked aid from the state board of health in fighting an epidemic of smallpox.

New Officers.—The Dayton Academy of Medicine has elected the following officers: president, Dr. Harry H. Hatcher; vice president, Dr. Howard V. Dutrow; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. John F. Fouts.

Proposed Substitute for State Board of Health.—A bill has been introduced into the legislature abolishing the present state board of health and establishing a commissioner of health with an advisory board of four members, following the lines of the New York law establishing a commissioner of health.

Training Schools for Pupil Nurses.—A bill enabling hospitals with five beds continuously occupied during the year to maintain a school for the training of pupil nurses has been passed by the house of representatives. The law now requires an average of fifteen patients in the hospital as a minimum. The State Nurses' Association and the larger hospitals are opposed to the measure on the ground that it is lowering the standard of nursing.

Personal.—Dr. Lillian G. Towslee has been appointed chairman of the advisory board of the Cleveland City Hospital Nurses Training School.——Dr. Joseph M. Kells, Columbus, recently underwent splenectomy at St. Joseph's Hospital, Rochester, Minn.——Dr. Harley H. Emerson, Columbus, has been appointed assistant medical examiner for the State Industrial Commission.——Dr. Estell H. Rorick, Wauseon, has resigned as a member of the state board of administration, and has been succeeded by Dr. Arthur F. Shepherd, Columbus.

Cincinnati

New Officers.—At the meeting of the Medical Research Society, Dr. Oscar Berghausen was elected president; Dr. Walter H. Stix, vice president, and Dr. R. Isaacs, secretary-treasurer.

Personal.—Dr. Arthur Pfeiffer sustained severe bruises in a collision between automobiles in Newport, February 11.——Dr. Byron Clyde Terwillegar has returned after serving for more than a year in the British service.

Base Hospital Officers.—The medical division of the proposed base hospital unit for Cincinnati has selected Dr. Joseph Ransohoff as director; Dr. Frank E. Fee, assistant in surgery; Dr. Roger S. Morris, assistant in medicine, and Dr. Paul G. Woolley, assistant in laboratory work.

PENNSYLVANIA

Personal.—Dr. B. Swayne Putts, Erie, suffered severe electrical burns, February 8.——Dr. John M. Gelwix, Chambersburg, has been appointed surgeon to the Cumberland Valley Railroad.——Dr. Edward W. Ryan, Scranton, who has been for two years and a half in charge of the relief work in Serbia, under the American Red Cross, has returned home for an extended visit.——Dr. William C. Reese, Wilkes-Barre, has been appointed chief surgeon of the Associated Coal Companies of Northeastern Pennsylvania.

Philadelphia

Officers Elected.—Philadelphia Obstetrical Society: president, Dr. Frank C. Hammond; vice president, Dr. F. Hurst Maier; secretary, Dr. Edward A. Schumann, and treasurer, Dr. William E. Parke.

Personal.—Dr. William M. Welch was the guest of honor at the tenth annual banquet of the Aesculapian Club, February 6.——Dr. Alfred Gordon delivered an address before the Medico-Legal Society of New York, February 21, on "The Relation of Legislative Acts to the Problem of Drug Addiction."——Lieut.-Col. Conrad E. Koerper, and Lieut. Royal H. McCutcheon, M. C., N. G., Pa., have resigned.

Blockley Pavilion Dedicated.—The new glass enclosed pavilion for tuberculous patients at the Philadelphia General Hospital was dedicated, February 15. Dr. Wilmer Krusen, director of health and charities, was in charge of the ceremonies. The dedicatory address was delivered by Judge Patterson. Other speakers include the Rev. Francis X. Wastl, Catholic chaplain of the hospital, Dr. Albert P. Francine, Mrs. Thomas Robins, secretary of the Women's Advisory Board, and E. J. Cattell, city statistician.

University Alumni Smoker.—The annual smoker of the Philadelphia Alumni Association of the Medical School of the University of Pennsylvania was held, February 17. Dr. B. Franklin Stahl, who has been secretary of the association for twenty-five years, was elected president, the occasion being marked by the presentation to him of a grandfather's clock bearing the university seal. Other officers elected were: honorary vice president, Provost Smith; vice presidents, Drs. William S. Wray, Everett P. Barnard and Seth A. Brumm; secretary, Stephen E. Tracy; treasurer, Morris B. Miller, and recording secretary, Floyd E. Keene.

SOUTH CAROLINA

Health Surveys.—The York County Medical Association has adopted resolutions asking the legislature to appropriate $2,000 for a health survey of York County.——The Orangeburg County Medical Society adopted similar resolutions and asked a like appropriation.

District Society Meetings.—At the fourteenth semiannual meeting of the Second District Medical Association, held in Barnwell, January 30, a resolution was adopted endorsing a state-wide law for the enforcement of prohibition.——The First District Medical Association has elected the following officers: president, Dr. J. Sumner Rhame, Charleston; vice president, Dr. John B. Johnston, St. George (reelected), and secretary-treasurer, Dr. Ernest C. Baynard, Charleston.

WISCONSIN

Pasteurized Milk Demanded.—An ordinance sanctioned by the health board of Kenosha, January 31, provides for the pasteurization of all milk used in the city.

County Sanatoriums.—The County Board of LaCrosse County has voted to bond the county for $50,000 to establish a forty-bed county tuberculosis sanatorium near Onalaska. The county board of Waukesha County has appropriated $16,000 for a site for a county tuberculosis sanatorium.

Valley Physicians Elect Officers.—At the annual meeting of the Fox River Valley Medical Society, held at Green Bay, February 7, the following officers were elected: president, Dr. Stephen E. Gavin, Fond du Lac; vice presidents, Drs. James P. Lenfesty, DePere, and Manly J. Sandborn, Appleton, and secretary-treasurer, Dr. Richard H. Sweetman, Green Bay. Green Bay was selected as the next meeting place.

Personal.—Dr. John W. Coon, formerly head of the Municipal Tuberculosis Sanatorium, Chicago, has been appointed medical director of the River Pines Sanatorium, Stevens Point.——Dr. Julius E. Block, Dundee, has sailed for England, where he will be on duty with the British troops in France.——Dr. Curtis A. Evans has been named as director of the new Red Cross Base Hospital, Milwaukee, and Dr. Joseph P. McMahon, adjutant.

CANADA

Senior Medical Student Killed in Battle.—Capt. James Knowles Bertram, Montreal, aged 25, a senior student at McGill University, who enlisted in November, 1914, as adjutant of the Twentieth Canadian Battalion, and was advanced to officer in charge of the intelligence department, First Brigade, headquarters staff, was killed in action on the Somme, Sept. 22, 1916.

Hospital News.—More ample accommodation will shortly be available for convalescent soldiers in Canada, according to the director of the military hospitals commission, Mr. S. A. Armstrong. Buildings are being prepared in many cities and upward of 3,000 more beds will soon be ready.——The old agricultural college building, Winnipeg, Man., has been taken over by the government, and will be used as a hospital and convalescent home for returned soldiers. Six hundred beds will be available by April 15. Reeducation work will also be undertaken.

Personal.—Capt. J. Bryce McMurrich, M.D., Toronto, who has been home for a short leave of absence, has returned to England.——Lieut.-Col. Thomas B. Richardson, Toronto, late commanding office, Toronto Military Base Hospital, has been appointed A. D. M. S., Sudbury, Ont.——Lieut.-Col. James C. Connell, dean of Queen's Medical College, Kingston, Ont., has been in Ottawa at the request of the militia department to give advice with regard to changing the eye test for Canadian soldiers.——Gen. Carleton Jones has been appointed Canadian Medical Commissioner, and is returning to Canada for two months to coordinate the services to meet the requirements of the front.——Dr. William Dixon, after a year's service with the R. A. M. C., has returned to Hamilton, Ont.

GENERAL

State Medical Boards Elect.—At the annual meeting of the Federation of State Medical Boards of the United States, held in Chicago, February 6, Dr. David A. Strickler, Denver, was elected president; Dr. Walter L. Bierring, Des Moines, Iowa, secretary-treasurer, and Dr. Conrad H. Suttner, Walla Walla, Wash., a member of the executive committee.

Medical College Officials Elect.—At the twenty-seventh annual meeting of the Association of American Medical Colleges, held in Chicago, February 6, Dr. William S. Carter, Galveston, was elected president; Dr. Edward H. Bradford, Boston, vice president, and Dr. Fred C. Zapffe, Chicago, reelected secretary-treasurer. Chicago was selected as the next place of meeting.

Opportunity for Young Medical Men in Public Health Service.—According to a statement just issued by Surgeon-General Rupert Blue, young medical men between the ages of 23 and 32 will be given an opportunity each month to demonstrate their fitness for admission to the grade of assistant surgeon in the U. S. Public Health Service. There are several vacancies in this corps. Application for permission to take the examination should be made to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Bequests and Donations.—The following bequests and donations have recently been announced:

To Dr. Judson Daland, Philadelphia, for medical research, $5,000, by the will of Elizabeth Swift.

Methodist Hospital, Indianapolis, a donation of $1,000, by William N. Bowers, Culver, in memory of Mrs. Bowers.

St. John's Hospital, Brooklyn, $10,000, and St. Mary's Hospital, $5,000, by the will of Mrs. Anna Walsh.

Toronto General Hospital and National Sanatorium Association, Toronto, for the endowment of a cot in each of these institutions, $4,000, by the will of Mrs. Elizabeth Cockburn, Toronto.

Luzerne County (Pa.) Medical Society, a gift of $10,000 for an addition to the library of the society and the purchase of books, by John Wells Hollenback.

Personal.—Dr. Joseph F. Borgoff, Butte, Mont., has been elected vice president of the West Coast Medical Association.——Dr. Bowman C. Crowell, professor of pathology and bacteriology in the University of the Philippines, Manila, has been appointed director of the Graduate School of Tropical Medicine and Public Health in that institution.——Among the Americans who accompanied Ambassador Gerard from Berlin are reported the following physicians: Drs. Albert H. Roler, Evanston, Ill.; Henry Harms, Christian B. Luginbuhl, Chicago; Charles L. Furbush, Philadelphia; Walter A. Haldy, Cleveland, and John R. McDill, Milwaukee.——Dr. Earl M. Rice, Portland, Ore., was surgeon of the British-India steamer *Mantola,* which was torpedoed southwest of the Fastnet, Ireland, September 8. Dr. Rice has arrived safely in London.——Dr. Milo A. Jewett, formerly of Danvers, Mass., who was recently United States consul at Kehl, Germany, has been recalled from his post.

Mental Hygiene Committee Meeting.—At the ninth annual meeting of the National Committee for Mental Hygiene, held February 7, in New York, it was announced that during the past year over $30,000 had been contributed for general expenses by four donors, one of whom had also pledged $100,000 toward an endowment fund. The Rockefeller Foundation had contributed $34,000 for special purposes such as surveys of conditions among the insane and feebleminded. These surveys have been completed in California, Colorado, Connecticut, Georgia, Louisiana, Pennsylvania, South Carolina, Tennessee, Texas and Wisconsin, and are now in progress in Chicago and New York. Sixteen state societies for mental hygiene have been organized. The initial issue of the quarterly organ, the *Journal of Mental Hygiene,* appeared in January. The following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice persidents, Prof. Charles W. Eliot, Boston, and Dr. William H. Welch, Baltimore; treasurer, Mr. Otto T. Bannard; medical director, Dr. Thomas W. Salmon, New York; associate medical director, Dr. Frankwood E. Williams, Boston, and secretary, Mr. Clifford W. Beers.

FOREIGN

New Hospital in Panama.—The new Panama Private Hospital of fifty beds is now open.

National Red Cross Established.—The president of the Republic of Panama has issued a decree establishing the National Red Cross of Panama.

New Course at University.—The University of the Philippines, Manila, has instituted a course which leads in one year to the degree of Doctor of Tropical Medicine and in two years to that of Doctor of Public Health.

Medical Practice in Grenada.—There is a reported scarcity of physicians in the island of Grenada, British West Indies, due to the European War. As a result, the ordinance regulating the practice of medicine and dentistry has been amended, whereby graduates of medical schools in the United States recognized by the Grenada Medical Board and who are legally entitled to practice medicine in the United States are eligible for registration.

Deaths in the Profession Abroad.—**J. M. Alvarez,** professor of hygiene at the University of Cordoba, Argentina, senator of the realm and governor of the Province of Cordoba, aged 57.——**K. Pelman,** professor of psychiatry at the University of Bonn and until recently chief of the psychiatric clinic, aged 78.——**H. Schulthess** of Zurich, whose works on heart diseases, the sphygmometer and photography of the pulse have carried his name far and wide, aged 54. His work on heart disease in the Swiss army was based on over a million separate examinations, on 21,000 men with pathologic hearts. His latest work, embodying the results of intensive research for many years, was reviewed in The Journal, Aug. 5, 1916, p. 473.

Death of Oswaldo Cruz.—The cable brings word of the death of the physician to whom Brazil is chiefly indebted for its rapid emancipation from yellow fever as soon as the American Commission had blazed the way. In less than three years, as chief of the public health service, he stamped out yellow fever in Rio de Janeiro, and in 1911 accomplished the same task in Para, the central seat of the rubber industry on the Amazon. For some years he has been at the head of the University Institute of Pathology and Bacteriology, named in his honor, formerly the Institut de Manguinhos. Cruz has personified in South America the new era of preventive medicine, and honors have been heaped on him at home and abroad. His modest summary of his work at Rio was published in the *Brazil Medico,* 1909, **23,** 482.

LONDON LETTER

London, Jan. 29, 1917.

Food Regulation: A New Loaf

It has been explained in a previous letter that in order to increase the supply of food the production of the ordinary white loaf is prohibited and the millers are compelled to extract a higher percentage of flour from wheat than formerly. By a further regulation the new loaf is modified. All flour milled from wheat must be straight-run, and the miller is required to obtain a certain percentage called the prescribed percentage. The percentage varies with the different qualities of wheat used, and the average percentage is 76. The miller, however, is not allowed to stop short at the prescribed percentage, but is required to obtain five points beyond this. These further five points may be obtained either by milling the wheat to a higher percentage or by adding flour ground from rice, barley, maize and oats, or any mixture of those grains or in both these ways. In addition, the miller has the option of adding a further five points obtained in the same way. The effect of this option is practically that a sack of 280 pounds of flour may contain, in addition to any compulsory admixture, about 17 pounds of flour ground from rice, barley, maize or oats.

Tuberculosis and the Panel System

The working of the panel system is attended with a certain amount of friction between physicians and the authorities. An example is the great question of the treatment of tuberculosis. It is calculated that about 150,000 persons are annually disabled by the disease in England and 50,000 die from it. The London Insurance Committee has issued a report explaining why the campaign against the disease does not make more progress. The reasons are: (1) the unwillingness of the insured presons to report themselves to their physicians; (2) the inability of the physician in many cases to make a diagnosis, and (3) the omission on the physician's part to utilize the services of the tuberculosis officer as a consultant. It is alleged that the old methods of club practice have been preserved and subsidized. In fact, there is now a premium on inefficiency, because the more people a physician undertakes to attend, that is, the quicker he undertakes the work, the more money he stands to make out of it. He is also able to sell the care of his patient to any other physician who wants to buy. In this bargain special qualifications go for nothing. It also seems that some panel physicians resent the idea of consulting with state specialists.

Influenza in London

Although the mortality from influenza in London remains far above the average, a considerable decline is recorded in the registrar-general's latest return. Last week the deaths numbered 77, compared with 98, 86 and 81, respectively, in the three preceding weeks. The death-rate from all causes also fell, being 19.6 per thousand of the population, against 23.7 in the last week of December.

PARIS LETTER

Paris, Jan. 25, 1917.

The War

ECONOMY IN SANITARY SERVICE

M. Justin Godart, undersecretary of state of the military health service, is making every effort to economize in the sanitary service. He has asked the directors of the health service to utilize their personnel when not otherwise engaged: (1) for the care of civilians; (2) for hygienic propaganda (conferences on the evil effects of alcohol, tuberculosis, etc.), and (3) for conservation of the race (care of infants and mothers, tuberculosis dispensaries, etc.). In their spare time the members of the service should also be occupied with: (1) sanitation and improvement of public hospitals and infirmaries; (2) assisting the mayors of these districts in municipal hygienic work, in the cultivation of abandoned farms, etc.; (3) agricultural work under instructions of the prefects, and (4) furthering in every possible way national or local interests. The undersecretary recommends the formation of squads consisting of the older men and tradesmen, which will make all repairs and do the necessary cleaning. Finally, it is recommended to avoid all waste in making dressings.

WAR AND THE DECREASE IN BIRTHS

M. Honnorat, deputy of the department of the Lower Alps, has ready for publication the demographic statistics of France for 1915. The data at hand are as follows:

Years	Births	Deaths
1913 (77 departments)	604,454	588,809
1914 (77 departments)	594,222	647,549
1915 (76 departments)	382,466	644,301

Therefore, in the departments which can be accounted for, registry shows: in 1913, an excess of 15,645 births; in 1914, an excess of 53,327 deaths, and in 1915, an excess of 261,835 deaths.

The figures for 1915 are incomplete. They do not represent correctly the births and deaths in the invaded departments in the war zone, where almost all the deaths of combatants are registered. However, considering only the seventy-six noninvaded departments, the war lost to France in 1915 one third of its births. It has cost her, for this year only, 200,000 children, equivalent to five army corps.

Aural Complications in Aviators During Flights

Dr. Lacroix read an interesting paper before the Académie de médecine in which he showed that the function of equilibration is not disturbed during normal flights, while audition is always affected. Normal flight in an aeroplane does not provoke vertigo. It causes, among other troubles, constant acoustic reactions owing to the intermittent buzzing in the ear and deafness, caused by the wind and variations in pressure against the tympanum. The healthy ear does not seem to be affected permanently by these conditions, and this emphasizes the importance of aural integrity on the part of the aviator. His certificate of physical aptitude should not be issued by one physician, but by a medical commission consisting of specialists in diseases of the heart, neurology, ophthalmology, etc.

The Legacy of Dr. Tripier

Dr. Raymond Tripier of the Faculté de médecine de Lyon, whose death was recently announced in The Journal (Dec. 30, 1916, p. 2026), bequeathed to the University of Lyon 200,000 francs for the encouragement of special work in operative medicine and pathologic anatomy. He also bequeathed to the city of Lyons the sum of 200,000 francs, the annual interest of which will permit the acquisition of a work of art every five years.

BERLIN LETTER

Berlin, Nov. 14, 1916.

War Neuroses

For the past three decades, since the enactment of the German accident insurance law, there has existed a controversy in regard to the acceptance of Oppenheim's conception of the clinical course of a traumatic neurosis. It seemed for a time as though Oppenheim's views had been rejected entirely, but recent experiences, gained as the result of the war, have again brought his views to the fore, and they have been made the subject of much discussion in periodicals and at meetings. The subject was discussed rather extensively at the recent meeting of the German Society of Neurologists, held in Munich the latter part of September. Oppenheim, Nonne and Gaupp opened the discussion. Oppenheim maintained his former attitude that a neurosis following a trauma must be considered as a traumatic neurosis. The trauma, which might have been psychic or mechanical in its action, would in either case produce the same functional disturbances of the central nervous system. A psychic trauma would not necessarily produce only psychic symptoms. The so-called "fright neurosis" and "commotion neurosis" are both traumatic neuroses. A peripheral trauma not having any psychic effect at all may nevertheless produce a typical neurosis. Psychic processes, on the other hand, may cause a fixation of these neuroses. A "free interval" does not interfere with the actuality of a physical trauma. Hyperthermia and hyperthyroidism are encountered in these traumatic neuroses; likewise specific vasomotor-trophic-secretory disturbances, which cannot be referred to hysteria, inactivation or compression. Akinesia amnestica may be due to hysteria. In its typical development, however, it is not a hysterical picture any more than is a reflex neurosis which bears a relationship to an arthrogenic muscle atrophy. The fact that these patients may be healed by strong mental impulses and peripheral irritations (Kaufmann's method, etc.) does not conflict with the possibility of these cases being traumatic neuroses. Disturbances of innervation are seen in organic and functional paralysis. These spasmodic neuroses resemble hysteria, but are not identical. Torticollis is in the same class. Oppenheim admitted that the spread of hysteria among wounded soldiers was underestimated by him. Traumatic neuroses also occur among prisoners, although less frequently. The traumatic neuroses of the neurasthenic and hysterical type are curable. They are influenced favorably by psychotherapy.

NONNE'S VIEWS

Nonne's views are opposed to those of Oppenheim. He does not regard the traumatic neuroses as a separate clinical entity. The syndrome described under the term "traumatic neuroses" is easily accounted for by the well known neuroses; hence the symptoms should not be ascribed to the trauma, that is, the direct effect of the trauma, but rather to the psychic state of the individual himself and his environment at the time the trauma was sustained. These disturbances are really a reaction on the part of the individual to the new conditions created by the trauma. A somatic trauma is not essential to the development of the neurosis, nor need there be any organic changes of any kind which might serve as a basis for the development of such a neurosis. Practically, Oppenheim's views should be discounted, because naturally they would influence, unfavorably, professional and public opinion, to the detriment of the economic interests of the state as well as the recovery of the individual. The war has shown that individuals possessed of a very stable nervous system may develop symptoms of neurasthenia, but the basis for such a neurasthenia is undoubtedly fatigue. This view has been confirmed by actual clinical experience. The various types of monosymptomatic and oligosymptomatic hysteria (Charcot's classification) occur. The borderline between certain forms of hysteria and fright neurosis is not very distinct. In many cases of war neurosis the nature and operation of the trauma play a greater rôle than the personality of the patient. Local contractures, akinesia amnestica, reflex paralysis and myotonoclonia trepidans (pseudospastic paresis with tremor) frequently occur among these patients as an expression of hysteria. The psychogenesis may be traced in many cases, and cannot be excluded.

The clinical course of these cases of hysteria does not differ from that of the ordinary case of hysteria. Mechanical disturbances of the peripheral nerves and a consequent irritation of the cerebral and spinal centers cannot be determined definitely. Cures by suggestive therapeusis are opposed to such a view. Partial functional paralyses of organically paralyzed nerves are to be regarded in part as functional fixations of a mild healed organic paralysis. The alcoholic form of hysteria plays only a minor rôle. The shell explosion neuroses are purely functional. Long continued loss of consciousness does not militate against this conception. Even after the lapse of many months these patients may be cured by suggestion, particularly hypnotic suggestion, and in the hypnotic state the symptoms may be reproduced accurately. Acute and chronic psychic traumas may cause these cases, without any existing organic changes in the central nervous system. The pretraumatic state does play a rôle in the etiology of these cases. It is noteworthy that the same clinical picture is often seen following infectious diseases and other acute internal disturbances.

PROGNOSIS

The prognosis of these war neuroses does not differ from that of the neuroses seen in civil life. The therapy is the same for both conditions, psychotherapy being most effective. Hypnotic suggestion is of great value. Much remains to be done in clearing up the prophylaxis as well as the prevention of recurrences of these neuroses.

GAUPP'S VIEWS

Gaupp, like Nonne, was opposed to Oppenheim. He does not believe in the existence of a special or particular war neurosis or a traumatic neurosis. The German is less susceptible to these conditions than the Slav or Roumanian. There is some difference in susceptibility among the various peoples of Germany. The symptomatology is practically the same everywhere, as is also the etiology, namely, fatigue and exhaustion of the nervous system, physical and psychic disturbances, neurasthenia, general reduction of body resistance, exhaustion of individual organs, heart, vasomotor and gastric neurosis, etc. Infection, alcoholism and nicotinism have an etiologic significance, and the degree of individual resistance, psychic as well as physical, determines the severity of the case. The existence of pathognomonic symptoms, such as headache, dizziness, insomnia, tachycardia, increased reflexes and mental depression, is denied. Acute psychic or physical trauma does not produce neurasthenia in a well man, but a man who is exhausted will easily fall a victim. The similarity in the clinical picture of the fright neuroses is noteworthy, especially when they follow severe acute shock of any kind (mine explosions, shell explosions, shell wounds and bullet scalp wounds), and after subacute psychic disturbances (mustering in, drilling, called to the front, initial experience in the trenches, command to attack, and seeing severely wounded or dead friends or comrades). The effect of a mechanical shock, such as a shell explosion, is often overestimated. The explosion usually is not an unexpected one, and therefore the psychic effect cannot be as great as it often is said to be. A warning of an impending explosion is given by the sound made by the traveling missile, and the soldier frequently can seek timely shelter. A state of fear-thought and a resulting loss of consciousness usually precede the occurrence of the explosion. The unconsciousness is often a psychic manifestation rather than a mechanical cerebral commotion. The majority of the clinical pictures are purely psychogenic. There may be a temporary fright neurotic complex which disappears rapidly (tremor, weakness of the legs, difficulty of speech, laughing, weeping and apathy). The difference between a fright neurosis and hysteria is wholly a matter of definition. Akinesia amnestica, reflex paralysis and myotonoclonia trepidans are psychogenic disturbances. In hysteria all grades of paralysis occur. Victims of war neuroses usually are not taken from among the wounded, contrary to Oppenheim's statement. They seldom occur among prisoners even when they have been shocked severely. Prisoners are actuated by one great desire: to remain well so that when they are exchanged they may return home in good health.

The symptoms of acute psychogenic disturbances are manifold, and preexisting disturbances are frequently made worse. The symptoms are not improved by errors in diagnosis and wrong treatment with orthopedic apparatus. The so-called "commotion neurosis" is not a neurosis at all, but an organic cerebral disease. The clinical symptoms of mild cases frequently cannot be distinguished from neurasthenia and hysteria. Imbecility, sclerosis, beginning dementia praecox and similar mental states frequently pave the way for psychogenic disturbances. The question of simulation or malingering cannot be discussed at this time. Perhaps we are not paying enough attention to this phase. The prognosis of all these war neuroses depends largely on the previous personality of the individual. Many forms of therapy are applicable.

THE DISCUSSION

The majority of those participating in the discussion agreed with Nonne and Gaupp without in any way influencing Oppenheim in his beliefs. He is convinced that there is an increase in the number of cases of hysteria among the wounded, and he insists that this clinical entity be considered in the granting of pensions. On the other hand, he does not believe that all war neuroses are of psychogenic origin. The war does more than make a fleeting impression on body and mind. The nervous system is severely affected, and perhaps permanently. He sounded a note of warning, asking every one not to look lightly on these war neuroses, and to guard against making a diagnosis of hysteria or neurasthenia, or even simulation. Furthermore, granting that there are individuals who do simulate, it must be borne in mind that even they may be ill.

Marriages

Hannibal Claude Fortune, M.D., Rochester, Ill., to Mrs. Claude Beatrix Fortune of Pleasant Hill, Ill., at St. Louis, February 5.

Walter Frederick Wessels, M.D., Los Angeles, to Miss Theodocia Longenecker of Chicago, Dec. 20, 1916.

Henry Ulric Woolsey, M.D., Hillsboro, Tex., to Miss Etta Mae Carroll of Penelope, Tex., February 1.

James Allen Rutledge, M.D., Woodville, Okla., to Miss Aline Colby of Ada, Okla., January 3.

Benjamin W. Ralston, M.D., Lindsay, Okla., to Miss Sue Koontz of Okemah, Okla., January 1.

David W. Jones, M.D., Baltimore, to Miss J. Williams, at Baltimore, February 4.

Deaths

Henry Dwight Holton, M.D., Brattleboro, Vt.; New York University, New York, 1860; aged 78; a Fellow of the American Medical Association, and third vice president in 1881; one of the most noted sanitarians of New England; died at his home, February 12. He was born in Rockingham, Vt., and after his graduation in medicine entered the army as surgeon of the Twelfth Vermont Infantry, U. S. V. In 1873 he was made professor of materia medica and therapeutics in the University of Vermont and served in this capacity until 1886. From 1873 to 1878 he was medical examiner to the Vermont Asylum for the Insane. In 1896 he was made a member of the Vermont State Board of Health and a year later was elected secretary and executive officer of the board, holding this position until his death. In 1884 he was elected a member of the Vermont senate and in 1888 of the house of representatives. He was president of the Connecticut River Valley Medical Society in 1869, of the Vermont State Medical Society in 1873, of the American Conference on Tuberculosis in 1901 and of the American Public Health Association in 1902. He had been for twenty-five years a member and thirteen years chairman of the Brattleboro school board.

Joseph Ford Thompson, M.D., Washington, D. C.; University of Maryland, Baltimore, 1857; aged 79; a Fellow of the American Medical Association and of the American Surgical Association; professor of anatomy and professor of surgery in Columbia Medical College; professor of surgery and later emeritus professor of surgery in George Washington University; surgeon to the Providence, Emergency, Children's Garfield Memorial, and George Washington University hospitals, Washington, and the Columbia Hospital for Women; acting assistant surgeon, United States Army, during the Civil War; died at George Washington University Hospital, February 1.

Julian Howard Allen, M.D., Spartanburg, S. C.; University of Tennessee, Nashville, 1888; aged 47; a Fellow of the American Medical Association, and president of the Spartanburg County Medical Society in 1906; surgeon to the Charleston and West Carolina Railroad, and Carolina, Clinchfield and Chicago Railway; surgeon to the Spartanburg County Almshouse and Jail; visiting physician to the Spartanburg Hospital; president of the city board of health; died at his home, January 23, from endocarditis following tonsillitis.

Harry Wilbur Stoner, M.D., Baltimore; University of Maryland, Baltimore, 1907; aged 44; formerly a Fellow of the American Medical Association; first assistant bacteriologist for the state board of health; associate professor of bacteriology in his alma mater; in charge of the laboratories of the Maryland General, and Presbyterian Eye, Ear and Throat hospitals; died at his home, February 4, from pneumonia.

Thomas Hunt Stucky, M.D., Louisville, Ky.; Hospital College of Medicine, Louisville, 1880; aged 58; formerly a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association in 1897; formerly president of the Louisville Association Baseball Club and of the Louisville National League Club; died in a sanatorium in Louisville, February 17.

Michel Thomas Lanaux, M.D., New Orleans; Tulane University, New Orleans, 1906; aged 33; a Fellow of the American Medical Association, and formerly vice president and secretary of the Orleans Parish Medical Society; died in the Presbyterian Hospital, New Orleans, January 12, from septicemia, due to an infected wound of the hand.

Harley G. Ristine, M.D., Fort Dodge, Ia.; Rush Medical College, 1869; aged 78; a Fellow of the American Medical Association; local surgeon for the Illinois Central and Minneapolis and St. Louis railroads; a veteran of the Civil War, and for forty years a resident and practitioner of Fort Dodge; died at his home, January 30.

Frank Ellsworth Allard, M.D., Boston; Boston University Medical School, 1892; aged 55; formerly president of the American Association of Medical Examiners; a member of the faculty in his alma mater; medical director of the Boston Mutual Life Insurance Company; died at his home, in Wellesley, February 4.

Willard Hall Rogers, M.D., New York City; Jefferson Medical College, 1876; aged 66; a Fellow of the American Medical Association; a member of the New York Academy of Medicine, and inventor of the water electrode; died at his home, February 9, from arteriosclerosis.

Frank Albert Ford, M.D., Altoona, Pa.; University of Pennsylvania, Philadelphia, 1897; aged 40; a Fellow of the American Medical Association; formerly president of the Blair County and Fifteenth Censorial District medical societies; a specialist on diseases of the eye; died at his home, February 10.

George Willis Robinson, M.D., Shreveport, La.; University of Pennsylvania, Philadelphia, 1895; aged 53; a member of the Louisiana State Medical Association; for three years house surgeon of the Manhattan Eye, Ear, Nose and Throat Hospital, New York City; died at his home, February 4, from pneumonia.

Arthur Elmore Smylie, M.D., Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1883; aged 54; for thirty-four years a member of the staff and president of the Eastern District Hospital; died in that institution, February 5, after an operation for carcinoma of the stomach.

William S. McPherson, M.D., Thurmont, Md.; University of Maryland, Baltimore, 1848; aged 92; said to have been the oldest living alumnus of the University of Maryland; died at his home, in Auburn, four miles south of Thurmont, January 15, from senile debility.

Wilbur C. Hammond, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1894; a Fellow of the American Medical Association and Obstetrical Society of Philadelphia; died at his home, February 4, from septicemia due to infection received while operating.

Jasper Glenn Ernest, M.D., Gasport, N. Y.; Niagra University, Buffalo, N. Y., 1894; aged 46; a Fellow of the American Medical Association; coroner of Niagara County in 1912; died in the Buffalo General Hospital, Dec. 5, 1916, from ulcer of the pylorus.

Benjamin Franklin Strong, M.D., Chautauqua, Kan.; Rush Medical College, 1896; aged 55; formerly a member of the Kansas Medical Society; for four years county physician of Elk County, Kan.; died at his home, February 5, from nephritis.

Francis Chaffee, M.D., Towanda, Pa.; College of Physicians and Surgeons, Baltimore, 1880; aged 68; a member of the Medical Society of the State of Pennsylvania; died at the Packer Hospital, Sayre, Pa., about January 28, from gangrene.

Arthur S. Townsend, M.D., Bennettsville, S. C., Medical College of the State of South Carolina, Charleston, 1887; aged 53; a member of the South Carolina Medical Association; died at his home, Nov. 13, 1916, from angina pectoris.

Constantine Henry Martin, M.D., Allentown, Pa.; Bellevue Hospital Medical College, 1866; New York Homeopathic Medical College, 1868; aged 71; a veteran of the Civil War; died at his home, February 5, from cerebral hemorrhage.

Charles Stafford Ames, M.D., Ada, Ohio; Hahnemann Medical College, Chicago, 1884; aged 56; died in the Fort Wayne Hospital, February 1, from brain injuries following the overturning of his automobile, January 6.

William Shepard Seamans, M.D., New York City; College of Physicians and Surgeons in the city of New York, 1881; senior medical examiner of the Equitable Life Assurance Society; died at his home, February 6.

John Calvin Nesbit, M.D., South Burgettstown, Pa.; Columbus, Ohio, Medical College, 1881; aged 67; a Fellow of the American Medical Association; died at his home, February 3, from cerebral hemorrhage.

Charles E. Martin, M.D., Caruthersville, Mo.; St. Louis College of Physicians and Surgeons, 1898; aged 47; a member of the Missouri State Medical Association; died at his home, February 1, from cerebral hemorrhage.

Eugene George Campana, M.D., Butte, Mont.; College of Physicians and Surgeons, Chicago, 1904; aged 32; formerly a member of the Medical Association of Montana; died at his home, February 8, from heart disease.

Manford M. Hixson, M.D., Delphos, Ohio; Medical College of Ohio, Cincinnati, 1876; aged 67; formerly a Fellow of the American Medical Association; died in his office, February 1, from acute dilatation of the heart.

Thomas Nathaniel Jacob, M.D., Dalbys, Va.; Medical College of Virginia, Richmond, 1899; aged 46; formerly a Fellow of the American Medical Association; died at his home, Dec. 5, 1916, from angina pectoris.

Bradford LeBaron Baylies, M.D., Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1852; aged 87; died at his home, February 9, from bronchopneumonia.

John Milton Elliott, M.D., Peoria, Ill.; Kansas City, Mo., Medical College, 1890; aged 86; a veteran of the Civil War; died in the Deaconess Hospital, Peoria, February 1, from senile debility.

Rosh Leaman, M.D., Philadelphia; Jefferson Medical College, 1882; aged 62; a Fellow of the American Medical Association; died at the home of his brother in Philadelphia, January 25.

Mary Frances Monaghan, M.D., Waltham, Mass.; Tufts College Medical School, Boston, 1912; aged 35; also a graduate in pharmacy; died at her home, February 7, from heart disease.

Thomas J. McCain, M.D., Waldron, Ind.; Medical College of Indiana, Indianapolis, 1880; aged 72; a veteran of the Civil War; died at his home, January 22, from angina pectoris.

Charles Ruxton Ellison, M.D., New York; Bellevue Hospital Medical College, 1873; aged 67; formerly a Fellow of the American Medical Association; died at his home, January 31.

Isaac Cole Miller, M.D., Cincinnati; Miami Medical College, Cincinnati, 1874; aged 64; a member of the Ohio State Medical Society; also an attorney; died at his home, January 28.

William Henry Craig, M.D., West Schuyler, N. Y.; New York University, New York, 1875; aged 69; died in a hospital in Utica, N. Y., January 18, from cerebral hemorrhage.

William H. Faulds, M.D., Kingston, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 71; a Fellow of the American Medical Association; died at his home, February 7.

Thomas W. Bartlett, M.D., Sioux City, Iowa; Chicago Homeopathic Medical College, 1878; aged 63; died, January 26, in Los Angeles, where he had gone in quest of health.

Andrew John Crighton, M.D., East Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1891; aged 52; died at his home, Nov. 28, 1916, from chronic nephritis.

Alonzo W. Vincent, M.D., Valparaiso, Ind.; Bennett Medical College, Chicago, 1872; aged 76; died at the home of his daughter, in Gary, Ind., Nov. 28, 1916, from pneumonia.

Benjamin Rush Ridgely, M.D., Warren, Md.; University of Maryland, Baltimore, 1847; aged 93; died at the home of his son in Baltimore, February 2, from pneumonia.

Charles Robert Stanhope, M.D., Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; aged 36; died at his home, February 7, from tuberculosis.

Caroline M. Osborn Koenig, M.D., Buffalo, N. Y.; University of Buffalo, N. Y., 1904; died in Hahnemann Hospital, Rochester, N. Y., January 28, from pneumonia.

Robert Stevenson Denney, M.D., Aurora, Ill.; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association; died at his home, February 12.

Robert Cauch, M.D., Carpinteria, Calif.; Hahnemann Medical College, Chicago, 1877; aged 85; died in St. Francis' Hospital, Santa Barbara, January 24.

John R. DeVore, M.D., Suwanee, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1900; aged 40; died in a hospital in Atlanta, January 24.

John C. Rutter, M.D., Bloomsburg, Pa.; Hahnemann Medical College, Philadelphia, 1855; aged 90; died at his home, January 30, from influenza.

John South, Jr., M.D., Hoquiam, Wash.; University of Minnesota, Minneapolis, 1889; aged 66; also a druggist; died at his home, January 26.

William P. DeLaperriere, M.D., Hoschton, Ga.; Medical College of Georgia, Augusta, 1876; aged 61; died at Miami, Fla., January 29.

Frank Fanning, San Antonio, Texas (license, Seventeenth Judicial District Board, Texas, 1899); aged 62; died at his home, January 13.

Charles Henry Gibbs, M.D., Charlotte Court House, Va.; New York University, New York, 1880; aged 64; died at his home, January 20.

John Richardson Dodge, M.D., Hudson, Mich.; University of Michigan, Ann Arbor, 1869; aged 68; died at his home, January 26.

John McPeck, M.D., St. Albans, Vt.; University of Vermont, Burlington, 1882; was found dead in his home, January 10.

Alexander C. Anderson, M.D., Petaluma, Calif.; Harvard Medical School, 1864; aged 74; died at his home, January 17.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

BINIODOL

Report of the Council on Pharmacy and Chemistry

In accordance with the usages of the Council the report which appears below along with the reports of the clinical investigation by Drs. Cole and Keidel upon which the recommendations of the referee were based were sent to the manufacturer for comment. The reply of the manufacturer contained no evidence which justified the Council in modifying the action already taken. Publication of the report was therefore authorized.

W. A. Puckner, Secretary.

Biniodol was submitted to the Council by the manufacturer, Charles C. Yarbrough, Memphis, Tenn. The manufacturer claims the product is a solution of 1 per cent. of red mercuric iodid and 2.75 per cent. of guaiacol in bland vegetable oil. It is marketed with the implication that it is new and superior to other oil solutions of mercuric iodid. For instance:

> ". . . it is a straight solution of this mercurial compound, as no alkaline iodide or other chemical is used to bring about the solution." . . . "It is probably the first and only one-percent oil solution of straight mercury binodide made in America. . . ."
>
> [The manufacturer, in a letter addressed to the secretary of the Council, explains: "By *straight* solution, *I mean that the solution of* the red mercuric *iodid is* effected without the aid of any alkaline iodid or other *chemicals.* . . . *Biniodol* was *first offered early in* 1912 . . ."]
>
> "Biniodol is, therefore, superior and much to be preferred to other mercurials used for like purposes. It is highly active therapeutically, producing the desired effects, usually without the inevitable disadvantages of other mercurials. It *rarely causes salivation, diarrhea, or other* symptoms of mercurial intolerance, even when pushed to full therapeutic effect and when given for a considerable period of time. Nor does it produce anemia."

The Chemical Laboratory of the American Medical Association found that Biniodol contained 1 per cent. of mercuric iodid and 2.5 per cent. of guaiacol; hence the composition is essentially as claimed. It is not true, however, that Biniodol is the "first and only one-percent solution of straight mercury biniodide made in America." As shown in The Journal A. M. A., Dec. 9, 1914, p. 2247, formulas by Lemaire and Dunning for making a "straight" solution of mercuric iodid were published in this country in 1909 and 1910, respectively. Moreover, a 1 per cent. solution of mercuric iodid in oil is on the market and is described in New and Nonofficial Remedies.

To determine whether or not Biniodol is "superior and much to be preferred to other mercurials used for like purposes," the Council secured the cooperation of the Department of Dermatology and Syphilology of the Western Reserve University cooperating with the Cleveland City Hospital, and of the Johns Hopkins Hospital.[1] Each received three samples, labeled respectively, 1, 2 and 3: 1 contained Biniodol; 2, a 1 per cent. solution of mercuric iodid in oil; 3, a solution made up according to the formula of Biniodol, namely, 1 per cent. of mercuric iodid and 2.5 per cent. of guaiacol in oil. All the solutions were sterile. The investigators were not informed which preparation was designated by the respective numbers, but they were asked to use the preparations when intramuscular injections of a 1 per cent. oily solution of mercuric iodid were indicated, and to note what differences, if any, were observed following the use of the different solutions regarding pain, discomfort, induration and any other evidences of effects of the medicaments.

The Cleveland investigator reports that the patients were more or less confused in their replies to inquiries and gave rather indefinite and conflicting answers. After carefully tabulating the replies, however, the following summary resulted:

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[1] The reports of the investigators will be published in full in the annual Reports of the Council on Pharmacy and Chemistry, and in a reprint. The latter will be sent to any address on request accompanied with a stamped addressed envelope.

1 was worse than 2 or 3 in 6 cases.
2 was worse than 1 or 3 in 5 cases.
3 was worse than 2 or 1 in 1 case.

The report from Johns Hopkins records a series of 117 injections followed by the estimated reactions recorded below:

1. Severe, 13; mild, 14; none, 4; unrecorded, 8=39
2. Severe, 5; mild, 15; none, 16; unrecorded, 5=41
3. Severe, 7; mild, 25; none, 3; unrecorded, 2=37

That is, when recorded in percentages:

1. (Biniodol) severe, 33.3; mild, 35.9; none, 10.3; unrecorded, 20.5.
2. (Without guaiacol) severe, 12.2; mild, 36.8; none, 39.0; unrecorded, 12.2.
3. (With guaiacol) severe, 18.9; mild, 67.5; none, 8.1; unrecorded, 5.5.

The manufacturer of Biniodol supplied the names of several physicians who have used that preparation in their practice. Correspondence with these elicited the following statements:

One had used Biniodol in forty-eight cases and states that "only a few patients complain of pain at all and then only of a general soreness in the muscle." This physician reports a limited experience with the use of another manufacturer's "mercury biniodide oil solution" (apparently six cases), but severe pain following the injections made it necessary to abandon that preparation.

Another of these physicians named by the manufacturer, without reference to any series of cases, reports that "Biniodol is superior to any [oily solution of mercury biniodid] that I have tried."

A third physician has "used it [Biniodol] a few times" and is "convinced that it has no special action or virtue" over "any red mercuric iodide in oil."

This evidence, in its most favorable estimate, shows Biniodol to be a good 1 per cent. solution of mercuric iodid in oil, but fails to justify attributing to the preparation any unique characteristics. The preparations made in the laboratory were as satisfactory, or better than the Biniodol, and the presence or absence of the guaiacol was of no consequence.

Biniodol conflicts with Rule 6, since claims of superior therapeutic efficiency made for it are not established; and with Rules 8 and 10, since it is an unessential modification of an established nonproprietary article marketed under a proprietary name.

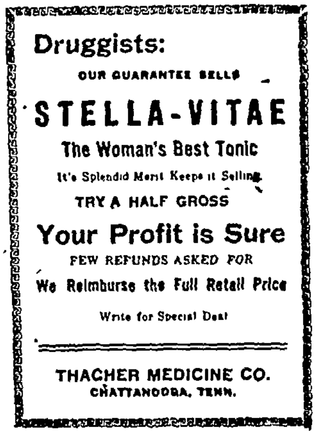
In view of the foregoing, the referee recommends that Biniodol be not accepted for New and Nonofficial Remedies, and that this report, including the clinical investigations of Drs. Cole and Keidel, be authorized for publication.

MORE MISBRANDED NOSTRUMS

Mecca Compound.—Mecca Compound was an ointment sold by A. D. Foster, E. W. Peterson, Sr., E. W. Peterson, Jr., and E. W. Raymond, who did business as the Foster-Dack Co., Chicago. It was analyzed in the Bureau of Chemistry, which reported that the stuff had a soft paraffin base containing carbolic acid, camphor, borates, zinc compound, a sodium soap and a trace of perfume. It was sold as a remedy for erysipelas, for the cure of gangrene or blood poison, cancers and bronchitis, a preventive of diphtheria, a remedy for pleurisy and pneumonia, for the cure of scarlet fever, as a remedy for smallpox, for the cure of appendicitis in its early stages, for the cure of lockjaw, goiter, measles and tuberculosis. These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. A plea of guilty was entered and the defendants were fined $50 and costs.—[*Notice of Judgment No. 4383.*]

The-Best Cough Remedy.—Davies, Rose & Co. (Ltd.), Boston, sold a mixture under the name "The-Best Cough Remedy" which the government chemists reported was a syrup, smelling and tasting of spearmint, and containing alcohol, chloroform and morphin. The claims made for it were such as to create in the minds of the purchasers the belief that the stuff was an effective remedy for incipient consumption, asthma, influenza, as well as being effective for the relief of consumptive patients in advanced stages of the disease. These claims the government charged were false and fraudulent. The company entered a plea of *nolo contendere* and was fined $50.—[*Notice of Judgment No. 4381.*]

Stella-Vitæ.—"Star of Life" was put on the market by the Thacher Medicine Company, Chattanooga, Tenn., and sold as a cure for "female weakness"; of course, it contained alcohol —20 per cent. The claims made were such as to create in the minds of the purchasers the belief that it was an effective remedy for all female weaknesses and diseases; was a cure for leukorrhea and would correct all irregularities peculiar to women. The government declared these claims false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty and was fined $75 and costs.—[*Notice of Judgment No. 4389.*]



Druggists:

OUR GUARANTEE SELLS

STELLA-VITAE

The Woman's Best Tonic

It's Splendid Merit Keeps it Selling

TRY A HALF GROSS

Your Profit is Sure

FEW REFUNDS ASKED FOR

We Reimburse the Full Retail Price

Write for Special Deal

THACHER MEDICINE CO.
CHATTANOOGA, TENN.

Vegetable Pulmonary Balsam.—Cutler Bros. & Co., Boston, sold this preparation under the claim that it was a remedy for consumption and pulmonary affections of every kind. Government chemists reported that the stuff was a sugar syrup, flavored with spearmint and sassafras and containing alcohol and opium. The therapeutic claims were declared false and fraudulent and made knowingly, recklessly and wantonly. The firm pleaded *nolo contendere* and was fined $100.—[*Notice of Judgment No. 4380.*]

Correspondence

The Young Doctor and Health Insurance

To the Editor:—In The Journal, January 27, under Current Comment, in discussing compulsory health insurance, you suggest that you would welcome "constructive discussion of health insurance." Having read Dr. Lambert's excellent paper in the same issue, I take the liberty of writing you to present a point of view which may be different from those taken by many men in the medical profession.

As director for the Appointments Bureau of the Harvard Medical School, I am often called on to advise young men entering the practice of medicine and to aid them, as far as possible, in getting a start. What chance has the young graduate of a modern medical school and hospital, trained in our best knowledge of diagnosis and treatment, to practice in a way satisfactory to himself and to the community? The medical school has turned out an alert, resourceful, intelligent, trained physician. His ideals are high, his courage good, his pocketbook empty. What opportunity does the average community offer to such a man? A very few of the better men are taken in as assistants to older men at small salaries. The Appointments Bureau seldom has a call for such assistants. What does general practice offer such young men? A fierce financial competition in medium and large cities, while the rural districts offer hard work and niggardly pay. If he has large talents to offer, he is more feared and less welcome by his older competitors. Lately a few small salaried fellowships have been offered by the Boston Dispensary. Five Harvard Alumni teaching fellowships of $500 each are eagerly sought. Aside from these few small aids, what can the young practitioner hope for?

The public and many of the medical profession still believe that for small fees, one and two dollars an office call and three dollars a house call, a man could do a family practice which would pay him a living, including automobile, etc. If he attempts this, he finds that careful, exact diagnosis is impossible in the time available. Free consultation with his colleagues, as he is accustomed to in the hospitals (group medicine), is out of the question, except in rare cases. His returns, certainly from families making below $1,200 a year, are entirely inadequate to meet expenses necessary to do the thorough work he is trained to do and which would satisfy his professional ambition. He is forced to spend less time and care on each case and to try to increase the number of cases in every way possible. Does this produce good medicine or promote an interest in preventive medicine?

Professional ambition is opposed by financial necessity and financial competition. All measures of preventive medicine tend to reduce financial returns. The choice lies between conscientious work with slow starvation, or lowering standards of service and adopting all possible business-getting methods. The economic basis of the practice of medicine is wrong. The old system is not suited to the modern medical requirements. It is organized for pathologic medicine, not preventive medicine.

What can be done to remedy this conflict between professional ambition and financial compensation? Our experience at the Appointments Bureau leads us to advise young men to seek salaried positions, such as those of public health officers. In such positions, the doctor's professional interest is in accord with the interest of the public and largely independent of his financial returns. He can afford to be ethical. Would it not be possible to promote this principle in health insurance? Might not the way be prepared for the young man to enter the practice of medicine on a satisfactory basis, both professionally and financially? Does not health insurance offer an opportunity to develop group medicine on a salary or equally satisfactory basis, to the great advantage of the medical profession? Will such a method answer the chief misgiving in regard to health insurance felt by medical men, namely, Will the public get the best service? Cannot we older men guide this new medical organization so as to give opportunity to the young men to work on a salaried group-medicine basis? Cannot a system be provided for admitting young men, assimilating them, promoting them, and finally retiring them at least from active service at a reasonably early age? After from five to ten years of service, they might be established in more paying private practice and willingly release this work to younger men.

Does any one doubt that the public and even the medical profession would benefit by welcoming and using these young, ambitious, well trained doctors with high ideals into the organization of health insurance?

A. B. Emmons 2d, M.D., Boston

The Bacteriologic Phase of Chronic Convulsive Toxemia (Epilepsy) of Intestinal Origin

To the Editor:—As a necessary supplement to reports previously contributed by me to The Journal, March 27, 1915, Jan. 29, 1916, and May 20, 1916, relative to the causal relationship of constipation to epilepsy, or, more properly, chronic convulsive toxemia, I beg leave to make the following statement:

1. The recognition of the relationship of constipation to epilepsy was forced on me by purely accidental experience involving several cases in which recovery from epilepsy had followed the successful and permanent relief of the constipation by surgical means. Then I began seeing many patients with epilepsy, all of whom were constipated and toxic. The constipation, as now shown by nearly 3,000 Roentgen-ray plates in my possession, was uniformly associated with mechanical conditions of the intestinal tract that interfered with and retarded the fecal current. The relief that I was and am able to give these patients, so far as the epilepsy is concerned, is relative to the degree to which I can restore and maintain normal bowel action.

2. But I was and am seeing many cases in which these same visceral states are not associated with epilepsy. I was early impressed that to explain this variation in result seemed logically to require the existence of an independent and determining factor. What was it? There were several theories to choose from. That of heredity was defective, because less than 2 per cent. of my own cases gave a history of even presumptive heredity. Nobody has claimed that it is present in more than a minority of cases and nobody has explained why it capriciously asserts itself, if at all, at all ages from infancy to old age. The theory of gross lesions of the brain would not do because they are not always found in epileptics; they are as often found in nonepileptics, and, when found in either class, are recognizable as secondary or terminal, and not causal conditions. The theory of cerebral traumatism, whether parturient or later, and that of perturbation of function in the ductless glands, were equally open to logical objection—based chiefly on the inconstant relation of these conditions to the epilepsy. The only conditions that I found constantly present in my cases were constipation with resulting toxemia. It seemed rational, therefore, that the variation in clinical manifestation must be determined by corresponding variation in the general toxic factors obviously present in all cases. The toxins present in these cases like all toxins were derived from intestinal bacteria and if there were variations in the toxins, such variation was doubtless due to corresponding variation in the organisms from which they were derived. In other words, it seemed logical from these known premises, that the special phenomena of epilepsy might be accounted for by the incidence of a special organism in the intestinal flora, which organism or its toxin, like that of tetanus, or both, absorbed into the blood, would cause the convulsive phenomena.

3. With these impressions in mind I directed my bacteriologic service to make a systematic examination of the blood in all convulsive cases which were presented for diagnosis. The result of this routine was that after several months I was furnished the data embraced in my report submitted to the Cincinnati Society for Medical Research. The organism there described was sent in the form of photographs, slides and cultures, whenever requested, to various institutions and independent investigators with the request that each take up the investigation *de novo* with reference to confirming or disproving the findings which I had published. Several investigators complied with my request, some with positive and others with negative findings. At the same time my own bacteriologic service went over its own work in a very painstaking way. As a result I have just had submitted to me the protocols of 578 observations, of which 491 were negative and 114 were positive. In a final series of thirty-six consecutive cases at the Sterling Hospital, all were negative. The report concludes with the statement that "with a revised technic and modified surroundings, it has not been possible to confirm the observations formerly submitted to you." In view of this finding, I feel it my duty at once to request that so much, but only so much, of my previous contributions as relate to the identity of a presumably specific organism and to the existence of an actual bacteremia in these cases may be considered as withdrawn. I make this request with my apologies for what now seems to have been premature publication, and for which I alone was responsible.

4. In justice to the importance of this investigation, now in the hands of the profession, I must urge that the foregoing may not be construed as closing the subject of the bacteriology of chronic convulsive toxemia. There are already too many important facts reported by too many competent observers working at too many different angles to justify an abandonment of the task. There are other findings in the blood reported to me in a private way that need to be followed out with care by investigators having the work in hand. While this is true, it is of great importance that the study shall not be restricted to the bacteriology of the blood in these cases. Three important reports have reached me relative to bacterial findings in the spinal fluid of epileptics. One letter just at hand from one of the largest institutions for epileptics in America reports the presence of an organism with identical morphology in each instance found in the spinal fluid in sixteen cases of epilepsy. I am now convinced that the subject cannot be said to have been exhausted until the intestinal

flora of these cases shall have been studied and the power of each of its constituent organisms or of its toxin to produce convulsions shall have been determined by ample experimentation. It is now apparent to me that no less investigation can determine whether or not any intestinal organism, either directly or through its toxins, or both, is the determining factor in causing the convulsions in the cases under consideration. No less an obligation rests on large institutions equipped for research purposes. The stimulation of such investigation has been the leading motive of my various tentative publications, as shown notably in that of May 20, 1916, when I stated that "I feel that it is important to place findings, as far as they have gone, and conclusions, as far as they have been reached, before the profession, that they may at least serve as the basis of further investigations, especially by those with large clinical and laboratory facilities at their disposal."

In the meantime, the earnestness of the appeal for relief and the success so far realized make it necessary that, in conformity with my own practice, these cases shall continue to be treated as cases of *general* convulsive toxemia of intestinal origin. Charles A. L. Reed, M.D., Cincinnati.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COLLOIDS — MENDELEJEFF'S PERIODIC LAW — MARSH'S TEST — WATER PURIFICATION — QUARANTINE — SEWAGE DISPOSAL

To the Editor:—Kindly give me a few lines in your valuable journal for the following information:

1. What are colloids? How do they behave in the process of dialysis?
2. What is Mendelejeff's periodic law?
3. Explain Marsh's test for arsenic.
4. What is the best measure for purification of a city water supply obtained from a sewage-polluted river?
5. How long should patients afflicted with the following diseases be quarantined? Yellow fever, measles, diphtheria, smallpox, whooping cough, chickenpox, typhus, plague and scarlet fever.
6. Discuss proper means of sewage disposal so that other towns on the stream are safe.

Please omit my name. T. E. A.

Answer.—1. The colloidal condition may be defined as the condition in which an insoluble substance, as far as ordinary observation and the common methods for separation (filtration, sedimentation, etc.) are concerned, *the substance appears to be present in actual solution,* whereas *in reality* it is present as a suspension of finely divided particles. An extremely finely divided solid suspended in liquid, or an emulsified liquid suspended in another liquid, are the most common types of such mixtures. For convenience colloids are divided into two classes, suspensoids and emulsoids. The colloidal solutions of metals are typical suspensoids, being easily precipitated by the action of salts, and they do not gel. Emulsoids, of which, protein colloids, starch and gelatin are types, have the property of forming semisolid or solid gels. A colloid may be either a crystalline or noncrystalline body, the original properties of which are often changed in becoming colloidal.

2. According to Mendelejeff's scheme, the elements are arranged in arbitrary sequence of their atomic weights, and in series, depending on a periodic recurrence of specific properties. The periodic law, therefore, may be stated thus: "The properties of elements are periodic functions of their atomic weights."

3. Marsh's test depends on the formation of hydrogen arsenid (arsine H_3As) from soluble arsenic compounds by the action of "nascent" hydrogen. On burning a stream of hydrogen carrying a small amount of hydrogen arsenid, the latter is broken down, and the arsenic may be deposited on a cold dish. Details of the method of carrying out the test may be found in almost any book on chemistry.

4. Either mechanical or sand filtration, and perhaps treatment by the hypochlorite method, should prove effective. The details cannot be discussed here, but may be obtained from publications on the subject, such as one referred to under 6.

5. The period of quarantine for infectious diseases is a matter depending largely on local laws and ordinances, and varies in different places. In the case of the insect-borne diseases, the period of quarantine is usually the period of incubation of the disease. This, according to government quarantine regulations, for yellow fever is six days, typhus fever, twelve days, plague, seven days. The period of quarantine for measles is given by Osler as four weeks. For diphtheria no time is given, but the convalescent should show two negative cultures. This rule is being adopted by many health boards. For smallpox the period of incubation is fourteen days. It is usually asserted that smallpox convalescents should not be discharged until complete desquamation. No period is given for whooping cough or for chickenpox, and would depend on local laws. The period usually given for scarlet fever is from six to eight weeks.

6. From "Preventive Medicine and Hygiene," M. J. Rosenau, Appleton & Co., New York, 1916, p. 955 et seq., we abstract the following information regarding the treatment of sewage: "By appropriate processes sewage can be artificially purified so that the decomposable organic matter is removed or oxidized and the bacteria removed or killed. Complete purification is not attempted as being too difficult and expensive, but the degree of purification is adjusted to the needs of the particular situation. Methods of sewage treatment are: (1) separation of the suspended matter from liquid sewage; (2) destruction of putrescible organic matter in liquid sewage and by oxidation and bacterial action; (3) transmission of sludge to the condition of stability and inertness by bacterial action without oxidation; (4) destruction or removal of bacteria from the liquid effluent. This is done by various processes, such as screens, detritus tanks, plain settling tanks, septic tanks, digestion tanks, chemical precipitation tanks and roughing filters. Purification processes include surface irrigation, broad irrigation, intermittent filtration contact beds and trickling filters. In addition there are finishing processes and methods of sludge disposal. A recent form of tank disposal is the activated sludge method that combines forced aeration with bacterial action." As will be seen, the subject is a very broad one, and space could not be given to a full discussion of it in this department. The bacterial content of the effluent from disposal plants of the types mentioned above varies greatly. A table is given by Rosenau showing this. Safety in the use of water from streams into which the sewage effluent is discharged would depend on proper purification, as mentioned in No. 4. Pennsylvania has a law prohibiting the discharge of all sewage effluents or factory wastes into any stream. This applies also to the sewage from single houses in town or country; but, according to Rosenau, experience has demonstrated that polluted waters are being constantly purified by means of filtration methods so that they are reliably wholesome.

TREATMENT OF CHILBLAINS

To the Editor:—What is the best treatment for chilblains? What can be done when localized swellings occur and the patient suffers considerable pain? Is there any prophylactic treatment?

The books recommend internal treatment of calcium lactate and local applications of tincture of iodin, but I have obtained no success with those measures. J. W. O'Neill, M.D., Albertville, Minn.

Answer.—Prophylactic measures may be taken against chilblains before the advent of cold weather, or between exacerbations. The patient should be instructed to wear warm, loose woolen stockings and warm shoes. The feet should be bathed in warm water daily, and after the bath should be rubbed briskly, quickly dried, and a bland powder dusted on. Solution of potassium arsenite (Fowler's solution) in small doses is said to be prophylactic.

When the chilblains have developed, more active treatment should be employed. If the patient's general health is below normal, tonics, particularly strychnin and arsenic, are indicated. When the condition is very acute, it is well to use soothing lotions, as a calamine lotion, freely for a time. In the less acute cases, the greatest improvement is usually obtained with the use of stimulating applications, but the large number of these which have been recommended shows that no one of them is successful in all instances. Ichthyol, either in the form of a 25 per cent. ointment, or used in lotion form, one part to two or three parts of water, is perhaps most commonly recommended. Rubbing with oil of turpentine, pure or diluted, with camphorated soap linament or with phenolated oil, is sometimes employed. In the stubborn cases, the use of the galvanic current has at times produced a favorable effect, the positive pole being applied to the affected part, the negative pole to a neighboring region, near the truncal nerve.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

Colorado: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Regular: New Haven, March 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeo.: New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, March 6. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Idaho: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

Maine: Portland, March 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Minnesota: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

Massachusetts: Boston, March 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, March 26-28. Sec., Dr. J. A. B. Adcock, 325 E. High St., Jefferson City.

Montana: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

Porto Rico: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

Rhode Island: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Wisconsin June Report

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the oral, practical and written examination held at Milwaukee, June 27-29, 1916. The total number of subjects examined in was 17; total number of questions asked, 98; percentage required to pass, 75. The total number of candidates examined was 65, of whom 64 passed, including 2 osteopaths, and 1 osteopath failed. Two candidates were granted reregistration licenses by examination. Twenty-eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Chicago Coll. of Medicine and Surgery	(1914)	74.6, 77.7
Rush Medical College	(1916)	81
University of Illinois	(1914) 84.8; (1915) 85.5; (1916)	84.7, 86.1, 86.3, 88.2, 89.7.
University of Louisville	(1916)	79.7
Harvard University	(1915)	89.2
Detroit College of Medicine	(1900)	78.8
University of Michigan, Medical School	(1916)	86.6
Jefferson Medical College of Philadelphia	(1916)	86.6
Marquette University	(1916)	77, 78.2, 78.6, 79.1, 79.6, 79.6, 80, 80.2, 80.5, 80.6, 80.6, 81, 81.5, 81.5, 81.5, 81.7, 82, 82.3, 82.6, 82.7, 83*, 83.5, 83.6, 83.7, 84, 84.2, 84.2, 84.3, 84.5, 84.6, 84.8, 85.1, 85.1, 85.3, 85.5, 85.5, 85.7, 86, 86.1, 86.5, 86.6, 86.6, 87.5, 87.6, 88.2.
Milwaukee Medical College	(1912)	77.3
University of Toronto	(1910)	84.3

* Official information indicates that this candidate has not graduated.

College	LICENSED THROUGH RECIPROCITY Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1911)	Georgia
Bennett College of Eclectic Medicine and Surgery	(1900)	Illinois
Bennett Medical College	(1915)	Illinois
	(1911)	Tennessee
Chicago College of Medicine and Surgery	(1911)	Illinois
Chicago Homeopathic Medical College	(1902)	Minnesota
Chicago Medical College	(1886)	Minnesota
Coll. of Phys. and Surgs., Chicago	(1905) Arkansas; (1912)	Illinois
Illinois Medical College	(1903)	Illinois
Northwestern University	(1914)	Illinois
Rush Med. Coll.	(1913) Missouri; (1913) (1914) (1915)	Illinois
University of Illinois	(1914) (1915)	Illinois
Indiana University	(1908)	Indiana
College of Physicians and Surgeons, Baltimore	(1912)	Maryland
Johns Hopkins University	(1900)	New York
University of Minnesota	(1903)	Minnesota
Central Medical College of St. Joseph	(1900)	Idaho
St. Louis University	(1915)	Missouri
Fordham University	(1914)	Illinois
Starling-Ohio Medical College	(1911)	Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1909)	Minnesota
Vanderbilt University	(1915)	Kentucky
University of Heidelberg, Germany	(1899)*	Tennessee

*Graduation not verified.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that the following candidates were licensed through reciprocity from July 1 to Dec. 31, 1916.

College	LICENSED THROUGH RECIPROCITY Year Grad.	Reciprocity with
Hahnemann Med. Coll. and Hosp. of Chicago	(1909)	Tennessee
Rush Medical College	(1900) Iowa; (1914) (1916)	Illinois
University of Illinois	(1913)	Illinois
Kansas Medical College	(1913)	Kansas
University of Kansas	(1915, 2)	Kansas
Louisville Medical College	(1905)	Indiana
University of Louisville	(1915)	Kentucky
Johns Hopkins University	(1914)	Maryland
Harvard University	(1911)	Illinois
University Med. Coll. of Kansas City	(1913)	Kansas
John A. Creighton Medical College	(1912) (1914)	Nebraska
Cincinnati Coll. of Medicine and Surgery	(1895)	Ohio
Eclectic Medical College, Cincinnati	(1895)	Kansas
Toledo Medical College	(1900)	Ohio
Meharry Medical College	(1903) (1910) (1912)	Tennessee
Memphis Hospital Medical College	(1912)	Tennessee
University of Tennessee	(1915)	Tennessee

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Medical Examining Board of the State of Connecticut, reports the oral, practical and written examination held at New Haven, Nov. 14-15, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 23, of whom 16 passed and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University	(1913) 78.5; (1916)	88.7
Tulane University of Louisiana	(1911)	81.9
College of Physicians and Surgeons, Baltimore	(1914)	78.5, 84.6, 88.6
Harvard University	(1911) 84.7; (1912) 86.6; (1916)	82.1, 83.4
Columbia University, Coll. of Physicians and Surgeons	(1915)	79.6
Jefferson Medical College of Philadelphia	(1914)	76.3
Medico-Chirurgical College of Philadelphia	(1912) 88.9; (1916)	76.6
University of Vermont	(1914)	80.5
University of Toronto	(1908)	76.8
FAILED		
Bennett Medical College	(1914)	62
College of Phys. and Surgs., Baltimore	(1914)	69.4
Eastern University*	(1913)	55.2
Harvard University	(1915)	69.3
University of Michigan, Med. School	(1906)	71.4
Long Island College Hospital	(1916)	70.8
Jefferson Medical College of Philadelphia	(1912)	70.6

* Officially reported as not recognized by the Maryland State Board of Medical Examiners.

Book Notices

Mechanisms of Character Formation. An Introduction to Psychoanalysis. By William A. White, M.D. Cloth. Price, $1.75. Pp. 342. New York: The Macmillan Company, 1916.

This is an outline of the tenets of Freud and his followers. The subject is treated with reason and logic and without polemic. Whether or not one is convinced that the psychology of Freud is a sound psychology, one must concede that Dr. White has approached the subject in the proper way. In a chapter on genetic approach, he shows that consciousness and conduct should be studied in connection with their development, with what has gone before, in the individual and in the race. The theme is carried further in a study of the relation of the foreconscious and the unconscious to actions of the individual. In describing the conflict, the author says, "The opposing forces . . . are the conscious and the unconscious," that is, the conflict is between the instinctive tendency as determined by the race and individual histories, and the demands of actual present situations. After an interesting account of symbolism, the author passes to dream mechanisms and the family romance, the latter, of course, including the so-called Oedipus and Electra complexes. These chapters are distinctively freudian. Chapters on the will to power, which may be said to be that inherent force which drives us to acquire new things and powers, contain a further exposition of the "libido," which is treated in a broad and fundamental way. The chapter on extroversion and introversion is quite technical, and is an attempt to classify men on the basis of the relation of their libido to environment—things and persons. A chapter which is somewhat of a step aside considers Adler's ideas on organ inferiority. The matter is interesting and suggestive, but some of it rather far fetched. A chapter on the resolution of the conflict takes us back into the strictly freudian. The general practitioner will have a hard time in trying to understand all of this treatise, and we fear that even psychologists, alienists and neurologists who as yet are uninitiated into freudian circles may find more than a little that is not exactly clear. None the less, this is one of the best presentations of the subject to date. It shows moderation, even, we suspect, considerable self-restraint. No one interested in the psyche, in the neuroses or psychoses can read it without interest and profit. The wealth of illustrative facts from biology, ethnology, philology, chemistry, archeology and other departments of learning adds to the interest, and the author's handling of the libido and sex matters is such as to render nugatory one of the most frequent protests against the freudian philosophy.

Back Injuries and Their Significance Under the Workmen's Compensation and Other Acts. By Archibald McKendric, F.R.C.S.E., Surgeon in Charge of Surgical X-Ray Department, Royal Infirmary, Edinburgh. Cloth. Price, $1.25 net. Pp. 173, with illustrations. New York: William Wood & Co., 1916.

The author justly states that back injuries have a bad reputation. "The workman looks upon them with apprehension, the insurance company with doubt, the medical examiner with suspicion, the lawyer with uncertainty, and the court with as open a mind as is possible under the circumstances. . . . This little book is offered to the medical and legal profession as an honest effort to throw some light into the existing darkness." Since the introduction of workmen's compensation laws, the number of cases of injury to the back which appear for adjudication has almost equaled that of the so-called traumatic neuroses in personal injury courts. These cases are by no means all frauds, yet the difficulty of determining the presence of positive objective evidence of injury is often so great, and it must be said the methods of detecting them frequently so little understood, that many of the cases are incorrectly diagnosed, at times to the disadvantage of the person injured and at other times to the disadvantage of the employer. Any expressed opinion concerning a case of this kind, not based on a careful examination, with a full knowledge of the methods of diagnosis, is of no value. The author treats the subject clearly and shows not only that he has given it much thought and study, but also that he has had a large experience in this class of cases. Every physician who expects to handle such cases should read this book.

Surgical and Gynecological Nursing. By Edward Mason Parker, M.D., F.A.C.S., Surgeon to Providence Hospital, Washington, and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynecologist to Providence Hospital. Cloth. Price, $2.50 net. Pp. 425, with 134 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

A work on nursing by two medical men, a surgeon and a gynecologist, is somewhat unusual, not that such men should not know about nursing, but for the reason that works on this subject have been written mostly by teachers of nurses instead of teachers of surgery. As a result we find, as might have been expected, that the authors go more extensively into the medical aspects of the subject than is customary in works of this character. Considerable space is devoted to pathologic subjects, such as infection, bacteria, the reaction of the cells of the body to invading cells, carriers of disease organisms, tissue changes in inflammation, phagocytosis and cell degeneration. While it will be granted as a general proposition that one cannot have too much knowledge, yet it must be admitted that, when writing on the subject of nursing, one can go too deeply into subjects belonging to medicine at the risk of transforming what might have been a very good nurse into a very poor doctor. Parts 3, 4 and 5, on minor technic in surgical nursing, the patient and the operation, are particularly commendable for the amount and character of the detailed information which they contain. The chapter on the nurse as an observer is one of the best in the book, and should be learned by heart by every nurse. Part 6, on supplementary chapters, which closes the work, is really a brief discourse on first aid.

A Handbook of Infant Feeding. By Lawrence T. Royster, M.D., Attending Physician, Bonney Home for Girls, Norfolk, Vt. Cloth, Price, $1.25. Pp. 144, with five illustrations. St. Louis: C. V. Mosby Company, 1916.

This describes the method of feeding with different percentages of food elements. The author adheres closely to his subject, and has based his text mainly on his successful experience in infant feeding.

Medicolegal

Malpractice and the Statute of Limitations

(Hurlburt vs. Gillett (N. Y.), 161 N. Y. Supp. 994)

The Supreme Court of New York, Special Term, Kings County, says that, prior to 1900, actions against physicians and surgeons, based on their negligence, which resulted in bodily injury, were within the three-year statute of limitations of New York State. By Chapter 117 of the laws of 1900, Section 384 of the code of civil procedure was amended by adding the word "malpractice" as an actionable case to the enumeration of actions to recover damages which had to be commenced within two years. But, in adding the word "malpractice," the legislature did not undertake to define the term. Just what professions were intended to be benefited is left to conjecture, save so far as judicial discussion and consideration had sanctioned a general use of the word. It is said in 23 Cyc. 121 that, as applied to physicians and surgeons, malpractice means negligent acts committed by a physician in treating his patient, or the unskilful treatment by a physician or surgeon, in consequence of which the patient is injured. And again: "Malpractice, in its ordinary sense, is the negligent performance by a physician or surgeon of the duties which are devolved and incumbent on him on account of his contractual relations with his patient" (30 Cyc. 1546). Prior to the legislation of 1900, referred to above, the term "malpractice" was applied by the Court of Appeals of New York in a number of cases as characterizing negligence on the part of physicians and surgeons. With this eminent recognition and application of the word "malpractice" to the negligent and unskilful conduct of physicians and surgeons, there should be no judicial difficulty in holding that the legislative addition of "malpractice" as one of the causes for which an action for damages could be maintained only if commenced within two years was intended to cover actions for negligence on the part of physicians and surgeons which resulted in bodily injury or hurt to a patient.

Fees Which Physicians May Charge

(Succession of Percival (La.), 72 So. R. 467)

The Supreme Court of Louisiana, in holding that a physician should be allowed $1,500 for services as charged, holds that a physician has the right, in the absence of a custom of his own, to charge for his visits, by day or night, at least the fee sanctioned by the custom of the community in which he lives; nor is he obliged, in so doing, to rate himself below the class to which, in his opinion, he properly belongs; and, in such case, the burden rests on the patient, who refuses to pay, to show a better reason for such refusal than that the physician is comparatively fresh from the seats of learning. It may happen that the knowledge of the schools goes beyond that on which reputations have been founded, and that the later graduate, bringing, with his diploma, the latest discoveries, is more competent to deal with a particular case than the earlier, with the experience of a past generation.

Workmen's Compensation Act Allows Nothing for Malpractice

(Ruth vs. Witherspoon-Englar Co. (Kan.), 157 Pac. R. 403)

The Supreme Court of Kansas reverses a judgment obtained by the plaintiff, who, while at work for the defendant, had his leg broken between the hip and the knee, the court holding that the plaintiff's judgment here could not be increased by the fact that through the incompetent or negligent handling of the case by physicians a disability which would otherwise have been merely temporary was rendered permanent. The court says that, even if circumstances had been shown sufficient to charge the defendant with responsibility for the fault of the physicians, the rule would not be altered; for liability under the compensation act cannot be made to depend on the degree of care exercised. A part of the loss occasioned by an accidental injury to a workman is cast on the employer, not as reparation for wrongdoing, but on

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, XIII, No. 2

1 *Experimental Studies of Intestinal Flora. W. R. Sisson, Baltimore.—p. 117.
2 Hematology of Infectious Diarrhea. C. J. Bloom, New Orleans.—p. 128.
3 *Specific Diagnosis of Tuberculous Meningitis. M. Kasahara, Kyoto, Japan.—p. 141.
4 Diabetes Mellitus in Children, Report of Two Cases. P. C. Jeans, St. Louis.—p. 145.
5 Syphilitic Disease of Thymus in Infants and Mode of Origin of Dubois Abscesses. J. Oliver, San Francisco.—p. 158.
6 Congenital Atresia of Right Auriculoventricular Orifice with Complete Absence of Tricuspid Valves. J. H. Hess, Chicago.—p. 167.
7 Anatomy, Physiology and Pathology of Childhood. J. B. Holmes, Baltimore.—p. 174.

1. **Experimental Studies of Intestinal Flora.**—These experiments were carried out by Sisson with the purpose of ascertaining the effect of various foods commonly used in infant feeding on the bacterial flora of the intestinal tract. Feeding puppies cow's milk mixtures with high percentage of sucrose or lactose did not cause characteristic changes in the intestinal flora at any level, even when a diarrhea was produced. Starvation, of twenty-four hours rendered a relative amicrobism of the small intestine.

3. **Diagnosis of Tuberculous Meningitis.**—The diagnosis of tuberculous meningitis by the focal reaction of tuberculin, which Kasahara says is simple but specific in nature, is made by him as follows: After taking out a certain quantity of cerebrospinal fluid by lumbar puncture for cytologic examination, an intradural injection of diluted tuberculin (Koch's old tuberculin) is made. After six, twelve or twenty-four hours cytologic examination is again made of the fluid, which is obtained by lumbar puncture, and a comparison is made of the cell count before and after the intradural injection. The dose of tuberculin injected into the spinal canal is from 0.01 to 0.002 mg., with which a satisfactory result can be obtained. In the preparation of the tuberculin it is well to dilute it with physiologic salt solution (from 0.5 to 1 c.c.). Among specific reactions, the most conspicuous thing is an increase in the cell count of the cerebrospinal fluid, especially that of the red cells.

American Journal of Insanity, Baltimore

January, LXXIII, No. 3

8 Psychiatric Family Studies. A. Myerson, Taunton, Mass.—p. 355.
9 Consanguinity Among Patients at Newberry State Hospital, Newberry, Michigan. M. P. Kemp, Newberry, Mich.—p. 487.
10 State Charities Laws with Suggestion for Standard Type to Cover Needs of Present Day Management and also Mental Hygiene Movement Looking to Prevention. S. D. Wilgus, Rockford, Ill.—p. 499.
11 Brain Atrophy with and without Widening of Sulci. A. E. Taft, Boston.—p. 519.
12 Korsakoff Syndrome (*Toxemic Cerebropathy*) *in Pregnancy.* C. E. Riggs, St. Paul, Minn.—p. 525.
13 Results Produced in Dementia Praecox or So-Called Endogenous Dementia by Infusion of Sodium Chlorid Solution. N. Ishida, Japan.—p. 540.

American Journal of Orthopedic Surgery, Boston

February, XV, No. 2

14 Osteochondritis Dessicans; Report of Cases. E. G. Brackett, Boston, and C. L. Hall, Washington.—p. 79.
15 *Bone and Joint Lesions; Study of Six Cases. C. F. Eikenbary, Spokane, Wash.—p. 95.
16 Scoliosis. E. G. Abbott, Portland, Me.—p. 108.
17 Experimental Tuberculosis of Muscle. L. W. Ely and J. F. Cowan, San Francisco.—p. 134.
18 Use of Radium in Mobilizing Joints Having Fibrous Ankylosis Following Tuberculous Arthritis. J. J. Nutt, New York.—p. 137.

15. **Bone and Joint Lesions.**—One of the cases cited by Eikenbary was sent in with a diagnosis of tuberculosis of the right knee following trauma. This patient died within two months' time of multiple small round cell sarcomas. Another case diagnosed as knee joint tuberculosis proved to be a small round cell sarcoma of the tibia. A third patient complained of a great deal of pain in the lumbar region and to a lesser extent down both thighs, with marked weakness in both legs and thighs, not amounting to a paralysis. The trouble began about six months previously. She had been treated for that indefinite disease, "sciatica." A history of a previous carcinoma of the breast, removed by paste, the age of the patient (55), the rapid progress of the disease, the marked wasting and flabby condition of the muscles, the extensive bone destruction without abscess formation, the confining of the destructive process to a single vertebra, led Eikenbary to make a diagnosis of secondary carcinoma of the third lumbar vertebra.

Boston Medical and Surgical Journal

February 1, CLXXVI, No. 5

19 Division of Ureter in Pelvic Operations; Report of Cases. W. P. Graves, Boston.—p. 149.
20 *Fractures of External Condyle of Humerus in Childhood, with Rotation of Condylar Fragment. J. S. Stone, Boston.—p. 151.
21 Median Patella Incision for Knee Arthrotomy. E. G. Brackett, Boston.—p. 153.
22 *Management of Operative Cases Presenting Urinary Back Pressure. A. L. Chute, Boston.—p. 155.
23 *Acute and Subacute Perforations of Stomach and Duodenum at Massachusetts General Hospital. E. P. Richardson, Boston.—p. 158.
24 Appendicitis. T. W. Harmer, Boston.—p. 165.
25 Laboratory Aid in Diagnosis of Scarlet Fever. D. M. Lewis, New Haven, Conn.—p. 170.
26 Cancer Occurring in Acid Parts of Body. A. L. Benedict, Buffalo.—p. 172.
27 Improved Venipuncture Needle. G. G. Fernald, Concord.—p. 173.

20. **Fractures of External Condyle of Humerus; with Rotation of Fragment.**—Stone advises that open reduction be done in these cases within the first few hours or else after a sufficient interval for the swelling and ecchymosis to have subsided. The treatment demanded is open incision, exposure of the fragment, removal of the clot and any fibrous tissue which may occupy the space from which the fragment came. and then with a blunt dissector the prying of the fragment into place in its normal position.

22. **Operative Cases Presenting Urinary Back Pressure.**—It is Chute's firm belief that the mortality in conditions attended with urinary back pressure, especially in prostatectomy, depends on the condition of the kidneys more than on the technic of the operation; that much can be done by careful preparation and after-care to determine the postoperative result in these cases. Chute makes it a rule in the care of prostatics with a considerable residual and consequent urinary back pressure, to open the bladder under local novocain anesthesia. This is done to rid the kidneys of the embarrassment of urinary back pressure and to minimize, so far as possible, the chances of renal infection from an infected bladder. The enucleation of the prostate, which is done at a later date, is always carried out under spinal anesthesia in the bad cases.

23. **Acute and Subacute Perforations of Stomach and Duodenum.**—Of ninety perforations in eighty-nine patients treated by operation, thirty-two died, a general mortality of 35.5 per cent. Including fourteen patients dying without operation, the total mortality of the cases admitted is 44.2 per cent. Eight patients, all of whom recovered, showed a more or less local abscess at the time of perforation. Forty-eight duodenal and thirty-four gastric, showed a diffuse peritonitis at the time of operation. Of the duodenal cases, fifteen patients died, a mortality of 31 per cent.; of the gastric, seventeen died, a mortality of 50 per cent. From 1896 through 1905, inclusive, the gastric cases were eleven in number, of which seven patients died and four recovered, a mortality of 64 per cent. The duodenal cases were seven in number, of which five patients died and two recovered, a mortality of 77 per cent. From 1906 to 1915, inclusive, there were twenty-three gastric cases, of which ten patients died and thirteen recovered, a mortality of 43.5 per cent. The number of duodenal cases was forty-one, of which ten patients died and thirty-one recovered, a mortality of 24.4 per cent. The principal cause of death was peritonitis.

Bulletin of Johns Hopkins Hospital, Baltimore

January, XXVIII, No. 311

28 *Relation of Tonsillar and Nasopharyngeal Infections to General Systemic Disorders. S. J. Crowe, S. S. Watkins and A. S. Rothholz, Baltimore.—p. 1.
29 Legend of Salerno. How Constantine the African Brought Art of Medicine to Christians. C. Singer, England.—p. 64.

28. **Relation of Tonsillar and Nasopharyngeal Infections to General Disorders.**—This report is based on the study of 1,000 tonsillectomies. A histologic examination of the tonsils and adenoids removed at operation was made in every case. One hundred and thirty-nine were from colored patients, and of these eleven, or 7.9 per cent., were tuberculous. There were 861 white patients, and of these thirty-five, or 4 per cent., were tuberculous. Ninety-one patients had an infectious type of arthritis. Of this number the authors have been able to follow up and note the ultimate result of the joint condition in thirty-one. In twenty-four the joints are normal. Four cases are classified as improved because the patients are now able to walk without pain. Two are not improved, and one is in worse condition than at the time of the operation. In four cases of myalgia the trouble had entirely disappeared. Only two of nine cases of rheumatoid arthritis are improved. Five are much worse. The conclusion drawn from this group of cases is that only in very exceptional circumstances should any one subject a patient with "rheumatoid arthritis" to an operation for the removal of the tonsils. Removal of the tonsils and adenoids in cases of rheumatic fever eliminates one of the portals of infection. Four of twenty-five cases have had a recurrence. Removal of the tonsils and adenoids is not a very satisfactory therapeutic or prophylactic measure in chorea. Of the twenty-three cases of Sydenham's chorea in which the tonsils and adenoids were removed, eight have had a recurrence. A chronic enlargement of the deep cervical glands at the angle of the jaw, together with the past history of the patient, was the indication for tonsillectomy in 541 of the 1,000 cases. In twenty-one of 366 cases reexamined, the glands, subsequent to the operation, gradually assumed the characteristics of a tuberculous infection. In thirty-six additional cases the glands did not subside, and are treated as incipient tuberculous glands.

Bulletin of Lying-In Hospital of City of New York

January, XI, No. 1

30 *Fetal Infection as Cause of Stillbirth and Sundry Obstetric Theories. J. B. De Lee, Chicago.—p. 1.
31 *Posture in Obstetrics. J. W. Markoe, New York.—p. 11.
32 *Acidosis as Factor in Toxemias of Pregnancy. J. R. Losee and D. D. Van Slyke, New York.—p. 26.
33 Conservative Treatment of Eclampsia. G. W. Kosmak, New York. —p. 33.
34 Ureteral Fistula Following Labor. Left Ureter Transplanted into Bladder. J. W. Markoe, New York.—p. 41.
35 Source of Danger in Elective Cesarean Section Before Labor and with Undilated Cervix. J. A. Harrar, New York.—p. 46.
36 *Conservative Treatment of Eclampsia. R. McPherson, New York. —p. 48.
37 *Is Operation of Cesarean Section Indicated in Delivery of Breech Presentation? R. McPherson, New York.—p. 50.
38 *Case of Bilateral Congenital Glaucoma. C. E. McDonald and M. K. Smith, New York.—p. 53.
39 *Parallel Study of Blood Pressure, Urine and Edema in Pregnancy. M. Rosensohn, New York.—p. 55.
40 Case of Intussusception in Four Day Old Infant. K. B. Steele, New York.—p. 56.
41 Report of Work Done in Babies' Class from Oct. 1, 1915, to Sept. 30, 1916. E. L. Coolidge, New York.—p. 58.
42 Medical Statistics of Lying-In Hospital from Oct. 1, 1915, to Sept. 30, 1916. R. McPherson, New York.—p. 60.

30. **Fetal Infection.**—The following problem is suggested by De Lee: May not pregnancy develop the affinities of the bacteria normally present in the body, or that are casual guests, so that they attack the various vulnerable organs, including the fetus? That the obstetrician must be prepared to accept the theory of special affinities of bacteria De Lee is convinced. Two years ago he saw several cases of pemphigus simplex, and at the same time and within the four months succeeding there was a small epidemic of breast abscesses, fifteen in the mothers and babies. A simple *Staphylococcus albus* was all that was found and injection of the culture into rabbits did not produce in them the customary fatal septicemia.

31. See THE JOURNAL, Oct. 7, 1916, p. 1066.

32. **Acidosis in Toxemias of Pregnancy.**—The authors are convinced that the toxemias of pregnancy can be attributed neither to failure in diaminization of the amino-acids, nor to the moderate degree of acidosis observed. The nature of the toxin or toxins therefore remains unknown. The nature of the functional disturbances which cause the abnormal nitrogen metabolism observed also still awaits a satisfactorily conclusive explanation. Nevertheless, the constancy of the low urea ratios in the urine in eclampsia, and of high ammonia in pernicious vomiting, lends decided support to the opinion of Ewing and Wolf, that the nitrogen distribution of the urine, considered "in connection with all the data in the case," should assist in diagnosing the toxemias of pregnancy, and in differentiating them from conditions such as nephritis and transitory gastric disorders. The only eclamptic urines which showed more than 70 per cent. of urea nitrogen were those obtained one or more days postpartum. The ammonia was often higher than the average in normal individuals, but the abnormality is less striking than that of the urea. All the cases of pernicious vomiting showed strikingly high ammonia percentages. In five cases of nontoxic pregnancy the nitrogen ratios were normal.

36. **Conservative Treatment of Eclampsia.**—Of thirty-five cases of convulsive toxemia, thirty-three mothers were discharged well, fifteen children were born alive and were discharged well, fourteen children were stillborn and six children died within a few hours after birth. This leaves a mortality in the series of 8.6 per cent. and a stillbirth mortality of 40 per cent. All of these cases were true convulsive toxemias, having had one or more convulsions before admission, and all were treated in approximately the same way. Immediately on entrance to the hospital, the patient's blood pressure is taken, a catheterized specimen of urine obtained and she is put into an isolation room which is darkened and as much quiet as possible obtained. She is then given by hypodermatic injection ½ grain morphin sulphate, her stomach is washed out, 2 ounces of castor oil is poured down the tube at the end of the lavage and she is given a colonic irrigation of 5 gallons of 5 per cent. glucose solution. If the blood pressure is over 175 systolic, phlebotomy is done and a sufficient quantity of blood is extracted to bring the pressure down to 150. The patient is now kept quiet and ¼ grain morphin administered every hour until the respirations drop to eight per minute. At this time convulsions have usually ceased, the patient will have fallen into labor, and, as has happened in practically all the cases, will deliver herself in a short time. Of the cases included, twenty-three were spontaneous deliveries, nine were delivered by low forceps, two by version and breech extraction, one breech presentation and delivery. All the patients in whom a fetal heart was heard on admission were delivered of living children, and in none of these were there any signs whatever of the morphin which had been administered to the mother.

37. Also published in the *American Journal of Obstetrics and Diseases of Women and Children*, November, 1916.

38. **Bilateral Congenital Glaucoma.**—This is said to be the only case appearing thus far in the records of about 100,000 confinements in the service of the Lying-In Hospital.

39. **Study of Blood Pressure, Urine and Edema in Pregnancy.**—Rosensohn concludes from his study that the edema seen in pregnancy does not necessarily imply the existence of nephritis. It is apparently independent of the blood pressure. The average systolic pressure in primiparae in the later months of pregnancy is slightly below normal. The existence of hypertension does not necessarily imply the development of toxemia.

California State Journal of Medicine, San Francisco

February, XV, No. 2

43 Social Insurance. M. R. Gibbons, San Francisco.—p. 45.
44 Operative Treatment of Vertebral Tuberculosis. E. Jones, Los Angeles.—p. 50.
45 Physician's Responsibility to Life Insurance. P. K. Brown, San Francisco.—p. 51.
46 Use of Pure Phenol in Selected Cases of Chronic Middle Ear Suppuration. G. W. Walker, Stockton.—p. 54.
47 Roentgenographic Diagnosis of Hydronephrosis. M. Krotoszyner, San Francisco.—p. 58.

Georgia Medical Association Journal, Augusta

January, VI, No. 9

48 *Acute Torsion of Ovary in Young Girls; Report of Two Cases. H. S. Munroe, Columbus.—p. 169.
49 Chronic Affections of Knee. F. G. Hodgson, Atlanta.—p. 171.
50 *Acute Dilatation of Stomach; Report of Two Cases. J. T. Rogers, Savannah.—p. 174.
51 Migraine. J. G. Dean, Dawson.—p. 176.
52 Nervous Manifestations in Bright's Disease. L. M. Gaines, Atlanta.—p. 180.
53 Pituitary Extract. J. W. Palmer, Ailey.—p. 185.
54 New Dietetic Treatment as Indicated from Simple Culture of Stools in Infectious Diarrhea of Infancy and Early Childhood. W. A. Mulherin, Augusta.—p. 189.

48. Abstracted in The Journal, May 6, 1916, p. 1491.

Journal of Cancer Research, Baltimore

January, II, No. 1

55 *Primary Spontaneous Sarcoma in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 1.
56 Spontaneous Tumors of Rat. F. D. Bullock and G. L. Rohdenburg, New York.—p. 39.
57 Some Diagnostic Reactions for Malignant Tumors. A. F. Coca, New York.—p. 61.
58 Case of Epithelioma Developing in Skin Ulcer in Pellagra. K. M. Lynch, Charleston, S. C.—p. 77.
59 *Identification of Cells in Myelomas by Means of Indol-Phenol Blue Synthesis. J. Forman and J. H. Warren, Cincinnati.—p. 79.
60 *Palliative Treatment of Inoperable Carcinoma of Cervix by Means of Radium. R. T. Frank, New York.—p. 85.
61 Spontaneous Epithelioma of Fowl. A. I. Baird, New York.—p. 103.

55. **Primary Spontaneous Sarcoma in Mice.**—In a series of 12,000 necropsies on the bodies of mice there were found eighty-seven mice with neoplasms meeting all the criteria of sarcoma. These do not include lymphosarcomas, mediastinal tumors or tumors of the testicle, suprarenal, ovaries and kidneys, of "mesothelioma" character. Spindle-cell sarcomas constitute over half the tumors, there being forty-seven of all types, not including three oval-cell sarcomas, three perivascular sarcomas and two alveolar sarcomas. There were twelve osteoid sarcomas and ten polymorphous cell and ten round cell sarcomas. Metastasis was observed in twenty-three cases, or 26.4 per cent., the osteoid sarcomas leading with 75 per cent. metastasis occurred in only 13 per cent. of the spindle-cell sarcomas. Lungs, liver and lymph nodes showed most of the metastases. In all respects these sarcomas of mice correspond with the sarcomas of men, although the authors found no examples of melanosarcoma, multiple myelomas, or myeloid sarcoma. In at least eleven cases the sarcomas definitely arose at the site of previous injuries. In a few instances there seemed to be two distinct primary sarcomas in the same mouse, and there were three instances in which the growths suggested a mixture of sarcomatous and carcinomatous elements. About half the sarcomas arose in the subcutaneous tissues, apparently from the mammary gland in most cases; and next in frequency from the osseous tissues. Two cases of sarcoma of the uterus were observed, the only uterine tumors of any kind observed in all the necropsies. Twenty of the sarcoma mice also had other independent tumors, lung tumors being most numerous. Two mammary gland tumors closely resembled in structure the embryonal adenosarcoma of the kidney of man. The influence of inheritance on sarcoma incidence was marked.

59. **Identification of Cells in Myelomas.**—The specimen on which the study made by Forman and Warren is based consists of a tumor involving the lumbar vertebrae. In its growth it has replaced the bodies of these vertebrae, leaving only a shell of bone. The blood examination made on the patient about two weeks before his death, showed that there was not a leukemic state present in the blood at that time. The indol-phenol blue synthesis depends on the fact that alpha naphthol and dimethylparaphenylendiamin combined with two atoms of oxygen forms indol-phenol blue. A very large majority of the tumor cells give the oxydase reaction. These cells are definitely placed in the myeloid group.

60. **Radium in Inoperable Carcinoma of Cervix.**—In every case so far treated by Frank a distinct amelioration of pain was observed within two weeks after the second radiation. Coincidentally, the bleeding diminished or disappeared, and the foul discharge bec dorless and serous in character. In the earlier cases treated, because of insufficient filtration, very annoying rectal and vesical tenesmus was complained of, usually most marked on the third and tenth day after the beginning of the treatment. Severer rectal tenesmus developed in these cases as late as the third month. Since the practice of distending the vagina with gauze has been adopted, these unpleasant symptoms have either not appeared or have been very mild in character. The minimum quantity or radium substance needed is 50 gm. "Borderline" cases or operable cases, Frank says, should be submitted to operation after a short preliminary course of radiation. Good primary results may then be expected from simple total hysterectomy. Patients operated on should be subjected to postoperative, prophylactic radiation, beginning not later than four weeks after operation. Whether the final results will prove that radium can give a permanent cure of cancer Frank believes is a mooted question. Judging from the limited penetrating power of the rays and the variation of resistance of different cancers, it seems probable that numerous disappointments will occur, and that in many cases positive harm will be done by enthusiasts who refuse to submit operable cancers to surgical operation.

Journal of Infectious Diseases, Chicago

February, XX, No. 2

62 *Virulence of Diphtheria Bacilli from Diphtheria Patients and Diptheria Carriers. G. H. Weaver, Chicago.—p. 125.
63 *Alleged Detoxicating Power of Thyroid. H. R. Basinger, Chicago.—p. 131.
64 Epidemic of Acute Diarrhea Approaching in Some Cases Mild Dysentery. W. Sadler and R. F. Kelso, Quebec, Canada.—p. 140.
65 Passive Transference of Nonspecific Antibodies. P. K. Olitsky and B. S. Denzer, New York.—p. 145.
66 Comparative Study of Bacillus Anthracis-Symptomatici and Allied Organisms with Respect to Gas-Production. L. C. Todd, Detroit.—p. 150.
67 Transmission of Pneumonic and Septicemic Plague Among Marmots. F. Eberson and W. L. Teh, Japan.—p. 170.
68 Plague Poisons and Virulence. F. Eberson, Harbin, Manchuria.—p. 180.
69 *Effect of Various Chemical Substances on Hemolytic Reaction. N. P. Sherwood, Lawrence, Kans.—p. 185.
70 *Blood Culture Studies on Typhus Exanthematicus in Serbia, Bulgaria and Russia. G. Baehr and H. Plotz, New York.—p. 201.
71 Leukopenia and Leukocytosis in Rabbits. C. W. Wells, Chicago.—p. 219.

62. **Virulence of Diphtheria Bacilli.**—Diphtheria bacilli from patients with diphtheria and from carriers who have been in contact with such patients, Weaver found, are practically always virulent. The bacilli in such cases usually remain virulent up to the time of disappearance, even though a long time has elapsed. Weaver urges that carriers should be kept in isolation until the bacilli have been gotten rid of, or until the strains cultivated have been proved to be nonvirulent, and that cultures from the nose, as well as from the throat, should be made in all suspected cases.

63. **Detoxicating Power of Thyroid.**—Basinger found that the thyroid has no detoxicating properties that can be demonstrated by the injection of diphtheria and tetanus toxin directly into the thyroid.

69. **Effect of Chemical Substances on Hemolysis.**—In general, Sherwood says, the zone of concentrations fixing complement very nearly approximates, and in many cases coincides with, the weakest dilutions producing hemolysis, and may extend down to include a few concentrations which are unable to produce hemolysis. This suggests the possibility that the power of various organic compounds to deflect or fix complement may be a factor favoring infection or maintaining a chronic infection. Further, that some organic compounds might occasionally play some rôle in either inhibiting or intensifying the anaphylactic shock, since complement seems to be involved in this reaction.

70. **Bacteriology of Typhus in Balkans.**—The bacteriologic studies carried out by Baehr and Plotz in the Balkans and Russia on sixty-four individuals with typhus confirmed the observation previously made in New York, that *B. typhi-exanthematici* is present in the blood during the febrile period of the disease. Up to date, therefore, this organism has been found in pure culture in the blood of typhus patients in the United States, Mexico, Serbia, Bulgaria, Austria and Russia.

Journal of Medical Research, Boston

January, XXXV, No. 3

72 *Crystalline Hyalin. E. W. Goodpasture, Boston.—p. 259.
73 *Presence in Blood of Bacteria of Secondary Infection in Pulmonary Tuberculosis. F. Hall and S. C. Harvey.—p. 265.
74 *Isolation of Bacteria of Secondary Infection from Sputum in Pulmonary Tuberculosis. S. C. Harvey.—p. 279.
75 *Effect on Jejunal Mucosa of Exposure to Gastric Juice. F. C. Mann, Rochester, Minn.—p. 289.
76 Path of Involvement in Ascending Infection of Urinary Tract. D. N. Eisendrath and O. T. Schultz, Chicago.—p. 295.
77 Adenoma Formation in Stomach of Rabbits by Feeding with Lanolin. Y. Kon, Tokyo, Japan.—p. 337.
78 Production of Kidney Lesions with Staphylococcus Aureus Toxins. R. H. Major, Rosedale, Kan.—p. 349.
79 Studies on Paratyphoid Enteritidis Group. Some Cultural Characteristics and Their Relation to Host Origin. C. Krumwiede, Jr., J. S. Pratt and L. A. Kohn, New York.—p. 357.
80 Reaction of Cerebrospinal Fluid in Psychoses. P. G. Weston, Warren, Pa.—p. 367.
81 Studies on Staphylococcus Pyogenes Aureus, Albus and Citreus and on Micrococcus Tetragenus and M. Catarrhalis. I. C. Walker and J. Adkinson, Boston.—p. 373.
82 *Studies of Diphtheroid Organism Isolated from Sputum of Patients with Bronchial Asthma. I. C. Walker and J. Adkinson, Boston.—p. 391.
83 Studies on Paratyphoid Enteriditis, Typhoid, Dysentery and Colon Groups. H. Weiss and J. L. Rice, New York.—p. 403.
84 Aortic Aneurysms in Dogs; Report of Six Cases. S. R. Haythorn, Pittsburgh and A. H. Ryan, Boston.—p. 411.
85 Classification of Parasitic Amebae of Man. C. F. Craig, El Paso, Texas.—p. 425.
86 Comparative Study of Bacterium Pullorum (Rettger) and Bacterium Sanguinarium (Moore). L. F. Rettger and S. A. Koser, New Haven, Conn.—p. 443.
87 Argyrophilic Granules of Sympathetic Nervous System. A. Myerson, Taunton, Mass.—p. 459.
88 Fate of Micrococcus Aureus Introduced into Blood Stream of Dogs. C. J. Bartlett and Y. Ozaki, New Haven, Conn.—p. 465.
89 *Sensitization of Patients with Bronchial Asthma to Bacterial Proteins as Demonstrated by Skin Reactions and Methods Employed in Preparation of these Proteins. I. C. Walker, Boston.— p. 487.
90 Sensitization of Patients with Bronchial Asthma to Different Proteins Found in Dandruff of Horse and in Hair of Cat and Dog and to Serums of These Animals. I. C. Walker, Boston.—p. 497.
91 Sensitization of Patients with Bronchial Asthma to Different Proteins in Wheat and to Whole Protein of Wheat, Corn, Rice, Barley, Rye and Oat. I. C. Walker, Boston.—p. 509.

72. **Crystalline Hyalin.**—Epithelial hyalin, plasma cell, prostatic and crystalline nuclear hyalin are regarded by Goodpasture as a definite and perhaps identical chemical substance. He believes that the view that its presence signifies degeneration is probably correct.

73. **Presence of Secondary Bacteria in Tuberculosis.**—Hall and Harvey's results show that severe pulmonary tuberculosis, even with secondary infection, is rarely accompanied by a bacteriemia. Using the same technic, they were unable to confirm the positive findings of previous writers.

74. **Isolation of Secondary Bacteria from Sputum in Tuberculosis.**—In order to obviate the difficulties usually encountered in attempting to isolate organisms from the sputum the following procedures were adopted by Harvey: First, the mouth and nasopharynx are implanted with a nonpathogenic bacterium, the presence of which in the sputum, after washing, indicates that mouth contamination has not been removed. Second, the sputum mass is washed in a continuous stream of sterile salt solution until nothing is left but a small portion of the fibrin mesh which can hardly have origin from anything but an ulcerated or inflamed mucosa. Third, a portion of the fibrin mesh, which is cultured, is also stained for acid-fast bacilli, the presence of which identifies it as a derivative of the tuberculous process. The *Streptococcus nonhemolyticus* is the most frequent pyogenic organism found in association with pulmonary tuberculosis.

75. **Effect on Jejunal Mucosa of Gastric Juice.**—The results of the investigation reported by Mann are based on fourteen experiments. The specimens were obtained after operation. He says that when an isolated portion of the jejunum is transposed into the wall of the stomach the following changes may be noted: There may be slight thickening of both mucosa and muscularis. The mucus-producing cells may be increased in both number and size. There may be an active cell proliferation. In several of the experiments no change in the transposed mucosa was noticed. Ulceration of the mucosa occurred in one experiment, and in this case a more absorbable suture was found in the base of the ulcer. The gastric juice is probably not the primary cause of gastrojejunal ulcer. The function of the transplant as tested by its power to absorb fat was practically normal.

82. **Diphtheroid Organism in Sputum of Asthma Patients.**—A bacteriologic examination of the sputum was made by Walker and Adkinson in forty-five cases of bronchial asthma. In thirty instances apparently the same type of diphtheroid organism was isolated. This type is extremely polymorphous in its growth and much care is required at times to differentiate between it and other organisms, such as those belonging to the staphylococcus, streptococcus and pneumococcus groups. In the litmus sugar serum waters this type of diphtheroid organism coagulated regularly all of the sugars which were tried (dextrose, levulose, saccharose, dextrin, lactose, galactose, maltose, inulin, salicin, and raffinose and litmus milk). Mannite was unchanged by one half of the strains but was coagulated by the other half.

89. **Sensitization of Asthma Patients to Bacterial Proteins.**—The bacterial proteins were tested by Walker on 100 individuals, of whom seventy had typical attacks of paroxysmal bronchial asthma throughout the year, fourteen had seasonal attacks of paroxysmal bronchial asthma, six had either cardiac or renal disease, but had paroxysmal attacks, simulating bronchial asthma, seven probably had true bronchial asthma though their attacks were not typical, and three had very questionable attacks of bronchial asthma. The proteins were prepared only from the bacteria usually found in the respiratory tract; the *S. pyogenes-aureus, albus* and *citreus,* the *M. tetragenus* and *catarrhalis,* the *S. viridans-hemolyticus* and *nonhemolyticus,* and a type of diphtheroid bacillus usually found in the sputum of asthmatic patients were used. Ninety-two patients were tested with the protein from *S. pyogenes-albus:* six gave a positive reaction, eight gave a questionable one and seventy-eight gave no reaction at all. Sixty-eight patients were tested with the protein from *S. pyogenes-citreus:* two were positive, one was questionable, and sixty-five were negative. Eighty-one patients were tested with the protein from each of the two types of micrococcus. One patient gave a positive reaction to the protein from *M. tetragenus* and two patients to the protein from *M. catarrhalis.*

Of the patients tested with the streptococcus group, one gave a positive reaction to *S. hemolyticus,* but no positive reactions were obtained with the protein from *S. viridans* or from *S. nonhemolyticus.* Fifty-five patients were tested with the protein from an unidentified type of diphtheroid organism and sixty-eight from an identified type of diphtheroid organism; the latter type was usually found in the sputum of asthmatic patients. One patient reacted positively to each type of organism; three patients reacted questionably to each type of organism; fifty-one patients were negative to the unidentified type of diphtheroid organism and sixty-four were negative to the identified type of diphtheroid organism. An alcohol-ether preparation of bacterial proteins gave the most satisfactory results of any used.

Kentucky Medical Journal, Bowling Green

February, XV, No. 2

92 Diagnostic Points General Practitioner Should Know About the Ear. S. Cohn, Fulton.—p. 55.
93 Diagnostic Points General Practitioner Should Know About the Throat. H. G. Reynolds, Paducah.—p. 57.
94 Diagnostic Points General Practitioner Should Know About the Nose. G. C. Hall, Louisville.—p. 58.
95 *Tuberculosis; Its Relation to Life Insurance. W. R. Thompson, Mount Sterling.—p. 66.
96 Relation of Discharging Ear to Life Insurance. A. O. Pfingst, Louisville.—p. 68.
97 Rational Management of Typhoid. S. W. Crowe, Centertown.—p. 75.

95. Abstracted in The Journal, Dec. 2, 1916, p. 1692.

Maine Medical Association Journal, Portland

January, VII, No. 6

98 Eclampsia and Misfit Labor; Their Modern Management. S. P. Warren, Portland.—p. 173.
99 Medical Inertia and Vacation. J. A. Spalding, Portland.—p. 189.

Medical Record, New York

February 3, XCI, No. 5

100 Roentgenologic Diagnosis of Cerebral Lesions. C. W. Perkins, New York.—p. 177.
101 Case of Myatonia Congenita. M. Neustaedter, New York.—p. 181.
102 Wounds Caused by Modern Projectiles. B. F. Morowitz, New York.—p. 183.
103 Oral Infection and Its Relation to Arthritis. H. A. Goldberg, New York.—p. 185.
104 Modern Diagnosis and Treatment of Syphilis. F. W. Smith, New York.—p. 186.
105 Bacteriologic and Experimental Researches on Etiology of Sprue. H. Dold, Shanghai, China.—p. 191.
106 Epilepsy. L. Grimberg, New York.—p. 193.
107 Proctitis; Its Widespread Prevalence Not Recognized. A. L. Sherman, West Orange, N. J.—p. 196.

Military Surgeon, Washington, D. C.

February, XL, No. 2

108 *Most Practicable Plan for Organization, Training and Utilization of Medical Officers of Medical Reserve Corps of United States Army and Navy, and of Medical Officers of Officers' Reserve Corps of United States Army, in Peace and War. M. Ashford. —p. 123.
109 Field Maneuvers of Divisional Sanitary Troops, Leon Springs, Texas, November, 1916. R. C. Turck.—p. 156.
110 Effect of Marching on Rates for Nonefficiency of Newly Raised Troops. E. L. Munson.—p. 171.
111 Sanitation of Public Buildings. J. R. Hurley.—p. 183.
112 Recruiting for Military Service. F. T. Woodbury.—p. 195.
113 Demography in so Far as it Relates to Vital Statistics of Armies. W. P. Chamberlain.—p. 204.

108. **Organization of Medical Reserve Officers.**—It is specifically proposed by Ashford that the government make for the present an optional offer to all medical schools recognized as reputable by the American Medical Association. This offer is to be a choice of compulsory or optional course in sanitary tactics for their student body. Under this offer any medical schools which so elect may establish a course in sanitary tactics for their student body under the direct patronage of the government. The faculty of the individual school shall itself elect whether this course is compulsory for attainment of a medical degree or purely an optional one. If the medical school shall elect to make this course a prerequisite for the award of a diploma, the government will put this school in Class 1. If the medical school shall elect to make this course optional, the government will place this school in Class 2. The training of physicians, who, after graduation, voluntarily elect to continue their affiliation with the Medical Reserve Corps of army or navy, should be systematic, tend toward organization as well as education, and lead to classification of all available physicians according to their special abilities and special line of professional endeavor.

The course proposed here is a four-year correspondence course to be conducted by the surgeon-general of the branch of reserve activity elected, and also in annual summer maneuver camps for a period of not less than fifteen days. At the termination of the second year of the correspondence course those who have complied with foregoing requirements and whose papers in the correspondence course average up to a standard set by the surgeon-general, will be invited to take an examination in the subjects which they have studied. The successful candidates will be awarded a certificate of eligibility for appointment as captain in the medical section of the Officers' Reserve Corps of the army, or as passed assistant surgeons of the Medical Reserve Corps of the navy. At the termination of the fourth year of the correspondence course and the fourth annual instruction camp or cruise, medical reserve officers holding the eligibility certificate for captain will be invited to participate in an examination in sanitary tactics, and, if found qualified, will be awarded certificates of eligibility for appointment to the grade of major in the reserve corps of the army, or surgeon in the reserve corps of the navy.

The medical reserve officer who desires advanced study in sanitary tactics, will be able to gratify his taste by applying to the surgeon-general of his service for authority to take the postgraduate correspondence course. This will be a one-year course for graduates of the foregoing courses, and will be purely voluntary. It will consist chiefly of problems in sanitary tactics, map and visibility problems. Participants who successfully complete this course will be given credit on their efficiency records. These thoughts are amplified fully by Ashford in his paper.

Modern Hospital, St. Louis

February, VIII, No. 2

114 New Building for Hospital for Deformities and Joint Diseases. M. Craiger and M. G. Heidelberg, New York.—p. 83.
115 Solving Problem of High Cost of Living in Hospital. J. W. Fowler, Louisville, Ky.—p. 90.
116 Gelatin and Jelly Powders. J. P. Street, New Haven, Conn.—p. 93.
117 Work of Detroit Receiving Hospital. J. Dretzka, Detroit.—p. 96.
118 New Reception Building of Hospital for Insane, Brockville, Ont. J. C. Mitchell, Brockville, Ont.—p. 97.
119 Hospital Survey of Community. J. J. Weber, New York.—p. 99.
120 Small Community Hospital that Meets a Need. S. A. Lutgen, Wayne, Nebr.—p. 101.
121 Sociologic Aspect of Treatment of Alcoholism. C. B. Towns, New York.—p. 103.
122 Emergency Hospitals for Industrial Plants. L. L. Watters, New York.—p. 107.
123 Small Community Hospital—Organization. J. A. Hornsby, Chicago.—p. 110.
124 What the Chaplain Should Contribute to Team Work. F. W. Tracy, Rochester, Minn.—p. 122.

New Orleans Medical and Surgical Journal

February, LXIX, No. 8

125 Military Surgery from Personal Experiences in Present European War. K. W. Ney, New Orleans.—p. 546.
126 *Diagnosis of "Three-Days Fever" (Pappataci Fever). G. C. Shattuck, Boston.—p. 559.
127 Epidemic of Dengue in Porto Rico, 1915. W. W. King, Porto Rico.—p. 564.
128 Clinical Types of Dengue in Porto Rico Epidemic of 1915. W. W. King, Porto Rico.—p. 572.

126. **Diagnosis of Three-Day Fever.**—The duration of the pappataci or sand-fly fever varies from one to five, and perhaps to seven days; there is usually a leukopenia with decrease of the polymorphonuclear cells, and the pulse rate seldom exceeds 80, even with temperatures of 103. The onset is sudden, with chilliness, nausea, headache, heaviness and discomfort about the eyes, lumbar pain and stiffness of the muscles of the legs, and somnolence. On the next day there is fever of 101 or 102. The face is flushed, the conjunctiva injected, the tongue coated, and there is stiffness and pain in the back and calves of the legs, and no rash. The patient complains of frontal headache and is mentally depressed. The leukopenia is slight. The diagnosis of pappataci depends on presence of the usual signs and symptoms, the existence of other cases, the occurrence in summer in a region where the sand-fly is found, and the exclusion of other diseases by examination of blood films, negative serum reactions and sterile blood cultures.

New York Medical Journal

February 3, CV, No. 5

129 Diagnosis and Treatment of Gastric and Duodenal Ulcer. M. Einhorn, New York.—p. 193.
130 Ultraviolet Rays in Skin Diseases. F. Wise, New York.—p. 196.
131 Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. J. Daland, Philadelphia.—p. 199.
132 Blindness Relieved by New Method of Treatment; Report of Case. W. H. Bates, New York.—p. 200.
133 Stones in Urinary Tract. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 203.
134 Syphilis of Genito-Urinary Organs. S. W. Schapira and J. Wittenberg, New York.—p. 206.
135 Orthopedic Treatment of Infantile Paralysis. S. Kleinberg, New York.—p. 207.
136 Undifferentiated Excitement. J. A. Jackson and M. Abramovitz, Philadelphia.—p. 211.
137 Studies of Eye Ground Changes in Cerebral Spastic Paralysis. J. A. Kearney, New York.—p. 214.
138 Therapeutics of Olive Oil. E. J. Asnis, Philadelphia.—p. 215.

Ohio State Medical Journal, Columbus

February, XIII, No. 2

139 Obstructions of Ureter. H. L. Sanford, Cleveland.—p. 79.
140 Obstructions to Urinary Flow in Bladder. H. A. Baldwin, Columbus.—p. 81.
141 Diagnosis of Conditions Interfering with Urinary Flow Anterior to Prostate. C. M. Harpster, Toledo.—p. 84.
142 *Roentgen Ray Treatment of Acne. Résumé of Fourteen Years Experience. W. I. Le Fevre, Cleveland.—p. 87.
143 Control of Diphtheria. R. G. Perkins, Cleveland.—p. 89.
144 Epilepsy. G. G. Kineon, Gallipolis.—p. 91.

142. **Roentgen-Ray Treatment of Acne.**—During the past fourteen years several hundred cases of acne have been treated by Le Fevre. The majority of these patients have been cured. Practically all were improved, while a few have not responded well. Le Fevre feels that the results justify the care, the time and the expense required for this method of treatment, and heartily recommends it as the method of choice in the treatment of acne.

Public Health Journal, Toronto

January, VIII, No. 1

145 Principles Involved in Notification of Tuberculosis. P. H. Bryce, Ottawa.—p. 1.
146 Sanitation of Railway Cars. T. R. Crowder, Chicago.—p. 6.
147 Causation of Dental Decay. T. E. Constant.—p. 27.
148 War and Incidence of Insanity. W. Graham.—p. 30.

Rhode Island Medical Journal, Providence

February, I, No. 2

149 Obstetric Writers of the United States. H. G. Partridge, Providence.—p. 29.
150 Prevention of Disease. L. F. C. Garvin, Lonsdale.—p. 33.
151 Modern Roenten Ray Therapy. I. Gerber, Providence.—p. 36.

Southwestern Medicine, Las Cruces, N. M.

January, I, No. 1

152 Alkalinization; Its Uses and Index. H. A. Miller, Clovis—p. 10.
153 Roentgenology in Diagnosis of Chest Diseases. W. W. Watkins, Phoenix, Ariz.—p. 14.
154 Diagnosis of Gastro-Intestinal Lesions by Means of Roentgen Ray. W. B. Bowman, Los Angeles.—p. 21.
155 Some Theories and Few Facts about Headache. G. Werley, El Paso, Texas.—p. 29.
156 Headache in Diagnosis of Brain Tumor and Abscess. H. Crouse, El Paso, Texas.—p. 34.
157 Spinal Puncture in Relation to Headache. M. B. Wesson, El Paso, Texas.—p. 39.
158 Headache in Eye, Ear, Nose and Throat Work. E. R. Carpenter, El Paso, Texas.—p. 44.
159 Pioneer Practice in Southwest. H. Thompson, El Paso, Texas. —p. 46.
160 Retroversion; Its Clinical Pathology. A. C. Carlson, Jerome, Ariz.—p. 49.
161 Treatment of Pleurisy with Effusion. A. G. Shortle, Albuquerque. —p. 53.
162 Gunshot Wound of Abdomen. J. Vance, El Paso, Texas.—p. 57.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Tropical Medicine and Hygiene, London

January 15, XX, No. 2

1 Occurrence of Trichonocardiasis in Natives of Gold Coast. A. Ingram and J. W. S. Macfie.—p. 13.

Medical Journal of Australia, Sydney

December 23, 1916, II, No. 26

2 Mosquito and Insect Borne Disease. J. C. Verco.—p. 533.
3 Case of Atrophy of Choroid in Boy of Fifteen. L. G. Davidson. —p. 540.

Sei-I-Kwai Medical Journal, Tokyo

January, XXXVI, No. 1

4 Investigation of Diabetes Mellitus Among Japanese. S. Iwai. —p. 1.

Archives de Médecine des Enfants, Paris

December, 1916, XIX, No. 12, pp. 617-685

5 *Eczema in Children. J. Comby.—p. 617.
6 Infant Welfare Work in Brazil. (La division de protection du premier age du département sanitaire de l'état de Sao-Paulo.) C. Ferreira.—p. 626.
7 The Regional Tuberculin Skin Reaction. S. Pisani.—p. 632.
8 *Recurring Phlebitis in Domain of Inferior Vena Cava. A. Roux. —p. 636.
9 Acute Encephalitis or Serous Meningitis in an Infant. A. Roux. —p. 640.
10 Cerebrospinal Meningitis in an Infant. A. Roux.—p. 642.
11 Cerebrospinal Meningitis and Disinfection. J. Comby.—p. 644.

5. **Eczema in Children.**—Comby insists that eczema must be regarded not as an infectious disease but as a pure dyscrasia. Infection may become installed as a complication, and this is very frequent in children. It is not a factor in the pathogenesis but it may influence the prognosis unfavorably. In most children the eczema subsides before long, but the possibility must be borne in mind of some arthritic manifestation taking its place, such as asthma. In many cases, however, the eczema does not have this basis of a diathesis and it subsides radically in time under proper dieting. Even the arthritic type, persisting or recurring through months and years, may heal completely in time. The diet of the woman nursing an infant with eczema should be regulated as if the woman herself had eczema, avoiding alcohol, salted meats, acids and condiments. The diet should be vegetarian, drinking copiously of water, and the infant feedings should be spaced farther apart, at three hour intervals, with outdoor life, change of scene, change to the country or the mountains. Marfan has witnessed the subsidence of eczema in nurslings kept out of doors, at a moderate or high altitude. Comby has seen a change to the country or the seashore have the same effect, but strong winds should be avoided, and wind-blown sand particles. The bottle-fed infant should be given less fat in its milk, putting it on skimmed milk or buttermilk, or even on condensed or desiccated milk. The only way is to try first one and then the other, as it is impossible to tell which will be best for the individual child. Baths should be omitted, but the child must be kept scrupulously clean, with tepid douches, but not putting the child in the water as this macerates the epidermis, congests the skin and aggravates infantile eczema. Salves and moist dressings should also be avoided with the erythrodermia of young infants. Dry dressings (talcum powder) have an excellent influence on the acute dermatitis of young infants. Under the profuse and repeated powderings the oozing dries up, the redness subsides, and the epidermis heals over. Measures should be taken to prevent scratching; the best means for this, perhaps, is to fasten on the arms a rolled up sheet of cardboard. In this paper tube the child can move its arms freely but cannot bend them. If a salve is needed, one made with equal parts of starch, zinc oxid, petrolatum and lanolin may prove useful. It can be covered with gauze with openings cut in it for eyes, nose and mouth. This can be renewed once or twice a day. Crusts and scabs are best removed with sprays of boiled water, wet compresses or starch poultices. After this the zinc oxid salve can be applied. With chronic eczema of older children, a course of mineral waters at some spa may be advised, or Vichy water at home or arsenical treatment. No tea, coffee, wine or other stimulants. Some children do better without eggs, but they are useful if borne well. The dread of alimentary anaphylaxis should not deter from these useful foods; it is not as frequent or as important as some maintain. Moussous and Rocaz have reported good results from thyroid treatment in small doses.

8. **Recurring Phlebitis.**—Roux relates the case of a girl of 12 who on three occasions has had phlebitis in the domain of the inferior vena cava during some acute infectious disease, varicella, scarlet fever, and mild typhoid. With the latter the inferior vena cava was affected and also the portal vein system, and there were two attacks of nephritis. The condition of the veins is still precarious, and any intercurrent infection is liable to bring a return of the trouble which seems to be dormant at present.

Le Nourrisson, Paris

November, 1916, IV, No. 6, pp. 321-396

12 Infant Welfare Work in a French Province. (25 années, 1889-1913, de protection des enfants du premier age dans le département de l'Oise.) Delobel.—p. 321.
13 *Treatment of Tuberculosis in Young Infants; Prophylaxis and Prevention of Generalization of the Infection. Combe (Lausanne).—p. 347.
14 Loss of Important Elements in Condensed Milk. (Enseignements à tirer de l'analyse d'un lait condensé.) M. François.—p. 371.

13. **Tuberculosis in Young Infants.**—Combe reiterates the vital importance of preventing the infection of infants during the first eighteen months of life, saying that infection between the twelfth and eighteenth months practically condemns the child to death within six or eight months. After the eighteenth month, tuberculous infection induces merely glandular disease, local and closed, against which the child is admirably armed. It is armed against this to such a degree that only some intercurrent disease or deplorable conditions as to hygiene entail generalization of the tuberculous infec-

tion and death. The nursling must be protected, he reaffirms, against both bovine and human tubercle bacilli. Cow's milk must be boiled or pasteurized. This protects against bovine infection, but to protect against infection from some tuberculous member of the family requires much time, much money —for antiseptics are expensive—and much space, so that the child can be isolated in a well ventilated, sunny room. A single moment's forgetfulness, and the whole edifice of asepsis crumbles; the child is infected. Besides this, the isolation of the child seems so hard and cruel to the family that it is seldom strictly carried out, but unless the young child is kept away from the bacilli-sower and from the articles contaminated with his bacilli the child's doom is sealed. The milk of a tuberculous mother contains more or less toxins, even aside from the danger from direct contact and the poor quality of such milk. The physician has to appreciate these dangers before he can summon up courage to insist that the consumptive mother must not suckle her babe. She must never hug it, never caress it, never take it on her lap, and must restrict all contact with it to the strictly necessary, and never touch it without having first disinfected her hands with soap and some antiseptic solution. She must sterilize her mouth several times a day with an antiseptic solution, and always hold a handkerchief before her mouth as she speaks, sings, coughs or sneezes, when she is in the room where the child is kept, whether or not it is in the room at the time. All dishes and articles should be boiled after using, and the table and body linen thrown into boiling water every day and be further sterilized by ironing with a very hot iron. All dusting in the room should be done with a cloth slightly moistened with turpentine, the walls and floors washed with an antiseptic solution. The infant should creep and play only on a freshly laundered sheet in a railed space, both indoors and out, and it should be given only sand and little stones to play with, all carefully boiled and dried in the sun. All its playthings, rubber nipples, etc., should be boiled each time before being given to the child.

These measures are all theoretically possible and have been carried out in numerous instances, but as a rule the only safe way is to remove the child from its mother immediately after birth or remove the consumptive from the family circle. In France, Germany, Switzerland and elsewhere provision has now been made for institutions where infants exposed to danger of this kind at home can find shelter and safety.

In discussing means to augment the resisting powers Combe describes how he gives sunbaths to very young infants, graduating the heliotherapy to their size and strength. He also gives exposures to the actinic rays filtered through a sheet of special blue glass, allowing only the useful rays to pass. He begins with five minute exposures, front and rear, the lamp at a distance of over 3 feet. The sittings are gradually lengthened to an hour front and an hour back, the distance 1½ feet. The natural or artificial heliotherapy improves the general condition but does not seem to act directly on the tubercle bacilli or their products. The diet is regulated according to the indications furnished by analysis of the infants' stools. The natural heliotherapy is applied according to Rollier's technic.

Presse Médicale, Paris

January 8, XXV, No. 2, pp. 9-24

15 Tuberculosis in the Origin of Psoriasis. R. Sabouraud.—p. 9.
16 *The Oculocardiac Reflex with Thyroid Insufficiency and Under Thyroid Treatment. Petzetakis.—p. 12.
17 *Marasmic Infants. (Etude des nourrissons atrophiques, hypotrophiques et dystrophiques.) R. Raimondi.—p. 14.

16. **The Oculocardiac Reflex with Thyroid Insufficiency.**—Petzetakis reports that in six persons with myxedema of varying degrees of intensity the reflex phenomena from pressure on the eyeball were enormously intensified over what is observed in normal persons. The hypothyroidism leaves the sympathetic without the normal stimulation from the thyroid. As a consequence, the antagonist nervous system gets the upper hand, and vagotony results. He has induced a similar condition in dogs by nerve sections. Under thyroid treatment in one of his cases the lost balance was restored, and the oculocardiac reflex after a fortnight was about the same as in normal conditions. In two of the cases even light pressure on the eye for only two or three seconds arrested the heart's action for seven, eight, ten and fifteen seconds. Not a sound could be heard from the heart during this interval, even on auscultation. The young man in one case grew pale, stopped breathing and lost consciousness but the pulse gradually resumed its course, and became quite normal by the end of the second minute. It was the general impression that if the compression had been kept up a few seconds longer the syncope would have been definite. In this case, under thyroid treatment compression of the eyeball no longer induced syncope; it merely retarded the pulse to 20 or 25 beats per minute.

17. **Marasmus in Infants.**—Raimondi is chief of the medical staff at the Institut de Puériculture at Paris, and he states that he has been impressed by the way in which some of the infants that have not progressed properly, showing a tendency to atrophy, hypotrophy and dystrophy, seemed to recuperate and grow into normal conditions when they began to be fed at regular intervals. In others, dieting, tonics or organ extracts answered the purpose. The old conception of athrepsia corresponds to the ultimate phase of badly managed marasmus. Improper methods of feeding are responsible for the atrophy in the majority of cases; in others the internal secretions are at fault, and the condition can be corrected only by some organ extract. The infant is not finished when he comes into the world, and the thymus, the hypophysis, the thyroid, the parathyroids or the suprarenals may be functioning inadequately. Giving the corresponding extract will tide the infant over this period of insufficiency. Raimondi declares that the use of organ extracts for infants is not as extensive as it should be. Infants need this treatment on account of the unfinished condition of these glands in them, just as adults need them when these glands are injured from disease or toxic influences. Experimental research has shown that with insufficiency on the part of the thymus, the bones are softer, the nitrogen and calcium content of the urine is larger, exhaustion, ulceration and a tendency to purpura are common, as also loss of flesh and lack of resistance to infections. Much in this experimental picture resembles the marasmus of young infants, and explains the benefit from thymus treatment, especially after ingestion of the total extract of the thymus.

The infants that seem to benefit from thyroid treatment, are small with dry or puffy skin and lids, the face waxy; the child does not seem bright and the skeleton and teeth may be backward in developing, and there may be eczema. An overlarge tongue also suggests a tendency to myxedema. The earlier this thyroid insufficiency is detected and remedied, the greater chance of warding off serious trouble as the child grows older. Thyroid instability is also suggested when babes small at birth do not grow normally, the bones and muscles keep small, the hair and teeth do not develop normally and the children find it difficult to sit up or hold up the head. This arrest in development may follow some infection.

Raimondi discusses further the beginnings of infantilism, for which hypophysis insufficiency may be responsible. The term is usually restricted to the genital organs, but the whole organism may be suffering from the stunting process. In short, he declares, the "endocrinians" along with the dyspepsia cases form the most important group of marasmic infants. The three other groups include those with inherited taints, those suffering from acquired infection, and those procreated under unfavorable conditions of overwork, drunkenness, lead or other chronic poisoning, advanced age, repeated pregnancies or other factors militating against eugenics. He calls this the group of *atrophiques par mauvaise conception* or *évolution fœtale contrariée.*

Berliner klinische Wochenschrift

December 25, 1916, LIII, No. 52, pp. 1381-1404

18 *Importance of Concentration and Temperature for the Biologic Behavior of the Blood Serum. (Bedeutung physikalischer Einflüsse für das biologische Verhalten des Blutserums.) H. Sachs. —p. 1381.
19 The Modern Procedure for Removal of Projectiles in the Tissues. (Steckschüssen.) H. Schmidt.—p. 1385.

20 Nervous and Mental Diseases as Affecting Military Efficiency. (Ueber nervose und psychische Krankheiten in ihren Beziehungen zum Kriegsdienst.) B. Saaler.—p. 1389.
21 *Rachitis. (Ueber Rachitis. V. Stoffwechselheilung und klinische Heilung.) E. Schloss.—p. 1391.

18. Importance of Physical Influences for the Biologic Behavior of the Serum.—Sachs calls attention to the importance of the concentration and the temperature of the serum as affecting complement deviation tests. The complement may become inactivated in a salt-free medium, but can be activated again if the reaction is made either acid or alkaline. He thinks it is beyond question that in many cases the negative findings with the complement-deviation test are due to inactivation of the complement by the lack of salt. Some serums behave differently when cold, but they can be influenced by addition of hydrochloric acid and then behave differently. In both these conditions, the salt-poor medium and the cold, some change in the globulin is evidently responsible for the modified findings. Tests with inulin confirmed the importance of physical factors for the deviation of complement. Inulin rubbed into cold water forms a thick suspension while it is dissolved in tepid water. This difference is enough to affect the deviation of complement. With the solution there is no hemolysis in the biologic test, while hemolysis occurs regularly when the suspension instead of the solution is used. These and further observations related lead to the formulation of certain laws as to the primary action of physical factors on the antibody-laden cells, both in biologic tests and in the living body. Physical changes in the globulin of the serum may prove of far-reaching import, both for pathology and therapy.

21. Rachitis.—In this, his fifth article on rachitis, Schloss discusses the clinical cure as contrasted with the cure of the metabolic derangement. His research has apparently demonstrated that in the progressive phase of rachitis, phosphoric acid is evacuated in the feces much more than in normal conditions. Under cod liver oil, as improvement progresses, the evacuation by way of the intestines becomes materially reduced. With spontaneous improvement, on the other hand, the reduction in the output occurs in the evacuation through the urine. He regards this fact as demonstrating that the cod liver oil ensures better utilization of the food, improving absorption, but not influencing the disease process directly. He warns that it takes over three months for the improvement to reach an appreciable stage. The skull is liable to show the improvement first, and craniotabes is thus a convenient and reliable index as to whether the rachitis is stationary or retrogressing. In his hundreds of cases he noted always that whenever a child began to present unmistakable craniotabes, other symptoms of rachitis soon followed, and, he exclaims, "even more important than inducing the retrogression of rachitic symptoms is the prevention of the development of new. And it is in this direction that proper treatment displays the greatest efficacy. Even at the best, it is rarely ideal; complete restitution is only seldom possible. There is usually left some flattening or asymmetry of skull or thorax, and the tendency to exacerbations is greater than generally credited." Those who have rachitic children under observation for many years are astonished at the tenacity of the rachitis and the way in which new manifestations are liable to develop, especially when treatment is suspended. This tenacity of the disposition to rachitis shows the necessity for keeping up treatment, allowing brief pauses. He insists that during the first two, or better yet, first three winters the treatment must be continuous. Only as the child enters its fourth year of life can we feel confident, as a rule, that nothing more will come of it. His analysis of the metabolic findings over long periods sustains these assertions. The individual response to treatment and the tendency to recurrence are both mirrored in the metabolic findings.

Deutsche medizinische Wochenschrift, Berlin

December 14, 1916, XLII, No. 50, pp. 1533-1564

22 Gas Gangrene. (Ueber Gasbrand.) E. Fraenkel.—p. 1533.
23 *Spirochete Articular Disease: Spirochaetosis Arthritica. (Ueber eine bisher unerkannte Spirochäteninfektion.) H. Reiter.—p. 1535.
24 *To Ward Off Danger of Rousing Dormant Infection at Secondary Operations. (Die Berücksichtigung der ruhenden Infektion bei der Operation Kriegsbeschädigter.) M. Katzenstein.—p. 1536.
25 The Eye Findings in Typhus. (Augenbefunde bei Fleckfieber.) A. Gutman.—p. 1538.
26 *Acute Nephritis in Troops on Eastern Front. Rostoski and Pantaenius.—p. 1543. Conclusion.
27 Prompt Restoration of Function after Suture of Severed Radial Nerve Shows that the Severing Was Not Complete. P. Ranschburg.—p. 1546.
28 Isolated Fracture of Tabula Interna with Destruction of Brain Tissue from Grazing Bullet Wound at Back of Neck. J. Volkmann.—p. 1547.
29 *Dysentery. Rodenacker.—p. 1548.
30 Set of Two False Teeth Extracted from Esophagus under Esophagoscopy. I. W. Samson.—p. 1550.
31 Thrush of the Vulva in Young Woman. (Soor der Vulva.) Golliner.—p. 1550.
32 Chair Litter for the Trenches. (Schutzengrabentrage.) Kurtzahn.—p. 1551.
33 Pathogenesis of Typhoid. E. Frank.—p. 1551.
34 The Literature on Tuberculosis since the Beginning of the War. (Tuberculoseliteratur im Kriege.) H. Tachau.—p. 1552.

23. Arthritic Spirochetosis.—Reiter describes a case of what seemed at first to be acute articular rheumatism with cystitis and conjunctivitis. The temperature was regularly 37 C. in the morning and 39 C. (102.2 F.) at night, with regular night sweats. This condition had kept up for thirteen weeks, and the emaciation and weakness were so extreme the young lieutenant had to be fed by hand. A spirochete was cultivated from the blood which moved about by spiral twisting, thus suggesting the name for it, *Spirochaeta forans*. It does not seem to be pathogenic for guinea-pigs, but mice die the eighth day with profuse sweating. Under salvarsan, slight improvement was noted but the joints were still swollen and painful and there was still some fever at date of writing, November 21. The first signs of trouble were noted in August.

24. Slumbering Infection as Affecting Secondary Operations.—Katzenstein emphasizes the way in which infectious germs may be harmlessly encapsulated and lie dormant for months or years, but then something may happen to rouse and release them, and the infection flares up anew. The physicians with the armies have had this happen again and again when they have sought to correct some crippling contracture or deforming healing of fractures following war wounds. One can never be sure that slumbering infection may not be present, compromising the effects of the intervention. Katzenstein reports here that he has systematically studied out three ways to cope with this danger, and has had excellent results with each. These three methods are: (1) Open treatment of the wound, especially after correcting deformingly healed fractures. The bones are held firm with a plaster cast, but he leaves the soft parts quite open, refraining from any attempt to suture until all danger of the infection is past. (2) The use of tissues from the site of former suppuration when any transplanting is to be done. He is convinced that the tissues that have been exposed to infectious processes become able to produce antibodies in time, and thus adapt themselves to their dangerous environment. This local tissue-production of antibodies he regards as the reason why lesions in the mouth or rectum and in the peritoneum heal so quickly, while the brain, joints, etc., which never normally come in contact with infectious germs, are so susceptible to their action. He used adjacent fat or fascia tissue in correcting ankylosis of joints after the healing of infectious wounds. The outcome was decidedly good in his ten knee joints thus treated, seven elbows, four wrists and twenty-one finger joints. He interposed in some of the cases the periosteum left after subperiosteal resection. Even with fractures, the greater resisting powers of the bone from a focus of infection can be utilized by chiseling off a scrap of this bone to serve as the bolt between the ends where such is needed. His third method is to operate in two sittings. First he prepares the ankylosed joint for the operation, opening up the cicatricial tissue and making the resections as needed. Then he closes the wound and waits for three days to see if fever or inflammation follows. If slumbering virulent germs had been aroused there would soon be signs of infection in the depths of the wound. When all is seen to be going well, he proceeds to complete the intended operation with transplantation of free flaps of fascia, bone or skin. He has done over 1,000 operations at Berlin designed to "uncripple the war cripples," and since he has been using the above methods the results demonstrate that it is thus possible to obviate the danger from slumbering infection.

26. **Nephritis in the Troops.**—Rostoski and Pantaenius here conclude their study of acute nephritis in the troops on the eastern firing line. It has been frequent, but without or with merely slight and brief fever. The mild course and the absence of anuria and of much oliguria are characteristics of this war nephritis. Typhoid bacilli were cultivated from the urine in some cases, showing that typhoid bacilli were evidently responsible for some of the cases at least.

29. **Dysentery.**—Rodenacker emphasizes that dysentery runs its course in two distinct phases, the stage of catarrhal enteritis, and then the stage of ulceration. The first phase is influenced by antidysentery serum; the second stage by local application of silver nitrate. Preventive serotherapy is useful in epidemics, but keeping out flies is indispensable.

Medizinische Klinik, Berlin

December 17, 1916, XII, No. 51, pp. 1329-1354

35 Spiral Fracture of the Humerus in Throwing a Hand Grenade. (Die Spiralfraktur des Humerus beim Handgranatenwurf, eine typische Kriegsverletzung.) H. Küttner.—p. 1329.
36 Chronic Dysentery. (Chronische Ruhr.) Jürgens.—p. 1331.
37 *Arsenic in Treatment of Blood Diseases. (Ueber Arsenkuren bei Blutkrankheiten.) N. v. Jagic.—p. 1334.
38 *Necessity for Keeping Venous Blood in Limb to Prevent Gangrene after Ligation of Artery. (Ueber die künstliche Blutleere von Gliedmassen und unterer Körperhälfte, sowie über die Ursache der Gangrän des Gliedes nach Unterbindung der Arterie allein.) E. Sehrt.—p. 1338.
39 Clinical Diagnosis of Contracted Kidney. F. Munk.—p. 1341. Concluded in No. 52, p. 1360.
40 Ultimate Results of North Sea Sanatorium Treatment of Children. (Die Dauererfolge der Behandlungen von Kindern in Nordseehospizen.) Becker.—p. 1353.

37. **Arsenic in Treatment of Blood Diseases.**—Jagic discusses the various factors involved in the therapeutic action of arsenic. Its main effect is the stimulation of assimilation under small doses; the action on the blood picture is varied and irregular. The improvement in weight and flesh under the arsenic may prove deceptive, as the blood disease itself may not be essentially modified. A stimulating action on the suprarenals is also likely; this would explain much of the favorable changes under its influence. He then reviews in detail his own experience with arsenic in various blood diseases in turn. In chlorosis, arsenic had to be supplemented with iron to accomplish its purpose; when there was a tendency to obesity, arsenic did not seem to be required. With pernicious anemia the arsenic improved the general condition, but the blood picture continued to grow gradually worse. The arsenic seemed to promote regeneration of reds and production of hemoglobin in acquired anemias if some constitutional weakness of the blood-producing organs did not prevent. In the leukemias, arsenic proved effectual only in the myeloid forms and when long kept up, especially when combined with radiotherapy. The outlook is better the smaller the proportion of large ungranulated marrow elements in the blood. The more granulated elements the better the response to both arsenic and the Roentgen rays. In this as well as in pernicious anemia, the remissions seemed to be rendered more durable by arsenic. With lymphogranuloma and lymphosarcoma no effect was apparent in some cases while in others the tumors seemed to grow smaller, especially under the combined arsenic-Roentgen treatment.

Of all the forms in which arsenic can be administered, Jagic prefers von Ziemssen's solution as the best. He gives it subcutaneously. The directions for it are to boil 1 gm. arsenous oxid with 5 c.c. normal solution of sodium hydroxid till dissolved. It is then rinsed into a graduated flask, and diluted to 100 gm. and filtered. It is indispensable to neutralize the solution with hydrochloric acid. To neutralize 1 gm. of the arsenous acid requires 4.75 c.c. of normal hydrochloric-acid solution. In conclusion he gives the chemical analysis of the Ziemssen solution which explains its action. His first dose is 1 mg. arsenic, gradually increasing by 2 mg. to a 12 mg. dose. Each dose is repeated three times, the injections being given three times a week. When less vigorous action is required, the maximum dose is 7 mg. It is convenient to have a set of vials on hand with the proper doses already measured out for the course. For internal use of arsenic he prefers the pill form or an arsenical mineral water (Dürkheimer). In chlorosis he gives pills of arsenous acid and reduced iron or combines Blaud's pills with the Dürkheimer water.

38. **Improved Tourniquet.**—Sehrt presents arguments to show that collaterals develop better after ligation of an artery when the vein is ligated too. Also that the tendency to gangrene is reduced when the venous blood is thus kept in the limb. He states that gangrene developed in 24.4 per cent. of the legs in which the artery was ligated alone but only in 9 per cent. when both artery and vein were ligated. In the arm, there was gangrene in 7.8 per cent. with ligation of the artery alone and 0 per cent. when artery and vein were both ligated. He ascribes the better outcome in the arm to the fact that the arm offers a much more extensive reservoir for the venous blood than the leg. He gives illustrations of a kind of clamp with which it is possible to shut off the blood flow in the femoral or other main artery by compressing this artery, as a projecting part of the clamp compresses the artery alone, while the rest of the limb or abdomen is left practically untouched.

Münchener medizinische Wochenschrift, Munich

December 26, 1916, LXIII, No. 52, pp. 1821-1836

41 *Phototherapy in Gynecology. (Ueber gynäkologische Aktinotherapie.) G. Klein.—p. 1821.
42 Meningitis after Infectious Sore Throat. (Meningitis nach Angina; Trepanation; Heilung.) F. Hahn.—p. 1822.
43 *Arrest of Severe Gastric Hemorrhage by Drinking Extract of Blood Platelets. (Ueber Stillung einer schweren Magenblutung durch Coagulen.) E. v. Meyer.—p. 1823.
44 Necessity for Antitoxin in Nasal Diphtheria. K. Ochsenius.—p. 1823.
45 *Treatment of Kidney Disease. (Klinische und funktionelle Studien über Nephritis. III.) H. Machwitz and M. Rosenberg.—p. 1824. Conclusion.
46 *War Neuroses among War Prisoners in Germany. (Kriegsneurosen und Kriegsgefangene.) F. Lust.—p. 1829.
47 Gas Gangrene Infection More Common in Wet Weather. (Einfluss der Witterung auf die Gasbrandinfektion der Kriegswunden.) R. Franz.—p. 1830.
48 Treatment of Fracture of Upper Arm. (Oberarmbrüchen.) Warsow.—p. 1832.
49 Adaptable Splint for Fractured Arm. (Eine universelle Schiene für Armbrüche, Oberarmbrüche. Verstellbare Beckenstütze.) Stolz.—p. 1834.
50 Field Incinerator. (Zur Hygiene des Stellungskrieges. III. Hygiene der Müllgrube.) K. Hannemann.—p. 1834.
51 *Improvised Atomizer for Applying Tincture of Iodin. F. Golch.—p. 1835.
52 *Simplified Technic for Transplanting Skin. (Mehr Transplantieren!) Bürmann.—p. 1835.

41. **Radiotherapy of Uterine Neoplasms.**—Klein here reports the present findings in women treated at the Munich clinic. The Roentgen rays are combined with radium and radioactive substances and a preparation of radium barium selenate is injected intravenously. The exposures are made about once a month until there are no more clinical evidences of the cancer. Over 18.5 per cent. of the ninety-two patients with inoperable malignant disease of the uterine cervix have had no further sign of trouble during the interval since. It ranges from four months to three years. About 50 per cent. of the thirty-two operative cases are still free from recurrence after an interval of from twelve to eighteen months, although in half of these there had been recurrence from one to three times before. One patient who had had a mammary cancer return three times previously, has been free from recurrence during the five and a half years to date, since the actinotherapy. His numbers are small, he admits, but the subsidence for several years to date of inoperable uterine cancer and the absence of further recurrences in the previously recurring operative cases are features unknown with exclusively operative measures. Even those who have succumbed to their cancer were given a year or more of life and freedom from clinical disease. Smooth and complete healing

was the invariable rule with cancers of the face. A complete cure was realized also in all cases of uterine fibromas and in nearly all of myomas.

43. **Arrest of Gastric Hemorrhage by Drinking Extract of Blood Platelets.**—The hematemesis occurred six hours after a gastro-enterostomy in a young man. It was arrested by ice and morphin but started again later. Meyer gave the man the contents of a tube of Coagulen, which he drank down and the vomiting and bleeding stopped at once and permanently. Meyer warns that this would have no effect if the stomach contained any fluid, as the blood platelet extract acts only by direct contact. Hence if used at all it should be directly after vomiting or as a preventive, while the stomach is still open and empty during the laparotomy.

45. **Treatment of Kidney Disease.**—This communication issues from Umber's service and presents the views and experiences there, which have recently been reviewed in these columns, February 3, p. 406.

46. **War Neuroses Rare in War Prisoners.**—Lust cites Mörchen's report that he found only five cases of war neuroses among the 40,000 war prisoners at the Darmstadt prisoners' camp. The majority reached the camp within three days of having been taken prisoner, and a number came from the Verdun region. There is every reason to assume that they had been subjected to the same kind of mechanical and emotional stress as the German soldiers, and yet the hysteric nervous disturbances so common among the soldiers were found only in one among each 8,000. Lust has also recently reviewed 20,000 war prisoners to select those to exchange, and he too found the war neuroses rare among both military and civilian prisoners of war. He calls attention to this as disproving certain prevailing theories as to the mechanical and psychic causes of war hysteria.

51. **Improvised Spray for Tincture of Iodin.**—Golch introduces a fine glass or metal tube through the stopper of the bottle, slanting it so it nearly hits the wall of the bottle about a third from the bottom. Then, through another glass tube, such as the nozzle of a fountain syringe, held at a right angle to the tip of the first tube, he blows across this tip, and the fluid in the bottle is drawn up and distributed in a fine spray. The fine glass tubes used for vaccine answer admirably for the tube running down into the bottle.

52. **Simplified Skin Grafting.**—Bürmann rinses the skin with salt solution and then goes over the surface with a razor as if for shaving, only with a little harder pressure. Fine scrapings of particles of wet skin thus collect on the razor and form a porridge-like mass which is transferred to the well granulating surface. The latter requires no preparation. The first dressing with boric acid salve is left undisturbed for five or six days. Then the surface is dressed with strong pressure from strips of plaster and this dressing is left for about a week. By this time, the scarcely visible scraps of epithelium have grown to the size of beans and pennies. This compressing plaster bandage is renewed two or three times so that by the end of two and a half or three weeks healing is practically complete.

Wiener klinische Wochenschrift, Vienna

December 28, 1916, XXIX, No. 52, pp. 1643-1666

53 *The Bacillus of Typhus. (Ueber die Morphologie des Fleckfiebererregers.) E. Csernel.—p. 1643.
54 *The Biology of Tumors. (Einfluss mangelhafter Ernährung auf den Zustand bestimmter Neubildungen, hauptsachlich der Tumoren der weiblichen Sexualorgane.) J. v. Jaworski.—p. 1646.
55 War Wounds of the Spinal Cord. (Ueber einen eigenartigen Rumpfhabitus bei Rückenmarkschussverletzungen.) G. Siefler and B. Sabat.—p. 1648.
56 War Neuroses. G. Mann.—p. 1651.
57 Poisoning from Berries of Atropa Belladonna; Seven Simultaneous Cases; Recovery. J. v. Braitenberg.—p. 1651.
58 The Pernitz Military Sanatorium. A. Baer.—p. 1652.
59 The Hemorrhagic Skin Reaction in Typhus. (Ueber die häm. Hautreaktion bei Fleckfieber.) B. Lipschütz.—p. 1654.

53. **The Typhus Fever Germ.**—Csernel gives five illustrations of the bodies found in typhus blood which seem to be the causal agents of the disease. Their identity with rickettsia seems to be established, but they show two distinct phases. They appear as a bipolar bacillus, the virulent form, and there is a long bacillus, a saprophytic form. In three cases he detected flagella suggesting protozoa, but the circumstances of the cases demonstrate, he declares, that the flagellates must be accidental guests, not the micro-organisms causing the typhus. On the other hand, the biologic tests testify to a bacillary infection.

54. **Biology of Tumors.**—Jaworski reports clinical experiences showing that the lack of proper food has an inhibiting influence on the growth of fibromas and myomas. The tumors retrogressed and the symptoms disappeared when the women, reduced to poverty by the war (Poland), got habitually only about 50 per cent. of the normal requirement of calories. On the other hand, malignant tumors seemed to be whipped up by the lack of proper nourishment. At the Home for Incurables where there have been 584 cancer cases since 1899, the death rate has increased from 67 to 91 per cent. and the proportion of cancer cases has materially increased, while the women with cancer average younger. The destructive influence of inadequate food is shown in the rapidly fatal course of uterine cancer. The semistarved organism, like that of the aged, is unable to oppose adequate resistance to the malignant disease. The data here presented are peculiarly instructive as the semistarvation and emaciation were not due to the neoplasm but were the extraneous conditions of material want.

Zeitschrift für Tuberkulose, Leipzig

December, 1916, XXVI, No. 6, pp. 401-468. Last indexed January 6, p. 72

60 Cresol Preparation for Disinfection of Sputum. M. Schottelius.—p. 401.
61 Combination of Calcium Lactate and Sodium Lactate in Treatment of Tendency to Hemorrhage from the Lungs. (Zur Kalktherapie der Hamoptoe.) Klare.—p. 410.
62 *Tuberculosis during the War from Standpoint of Social Insurance. (Erfahrungen in der Fürsorge für versicherte Lungenkranke.) F. Reche.—p. 413.
63 *Tuberculosis with and without Tubercle Bacilli in the Sputum. ("Offene" und "geschlossene" Tuberkulose.) Effler.—p. 418.
64 Sanatorium for Tuberculous Soldiers. (Die Militärlungenheilstätte Juditten—Ostpr.) Daus.—p. 423.

62. **Welfare Work for the Tuberculous.**—In the course of this study of the measures advisable for tuberculous beneficiaries of the social insurance, Reche comments on the necessity for an exact diagnosis. Too many doctors in dubious cases, he says, decide that the patient has tuberculosis, giving him the benefit of the doubt as to sanatorium treatment. He urges the necessity for special asylums for the advanced cases; these should not be taken into the general sanatoriums. But at the same time, the milder cases should not be excluded from these institutions as otherwise the sick dread them as being only places to die in. The orphans entitled to a pension from the insurance funds can have this support in the form of home care in some healthy country place, and this he advises.

63. **"Open" and "Closed" Tuberculosis.**—Effler protests against the classification of cases of tuberculosis merely by the presence or absence of tubercle bacilli in the sputum. Many regard the case as contagious or noncontagious solely from the sputum findings on one or two or more examinations. Cases are common in which, if the examinations are repeated often enough, bacilli finally appear in the sputum. He cites some cases in which the examinations repeated several times in the course of two or three months, gave positive findings after two or three negative examinations. Gerhard used to tell of a case in which only the fifty-ninth examination gave positive findings. The prevalence of tuberculosis in cadavers suggests almost that there must be still some other mode of contagion than from the sputum alone. It is incredible that this enormous number of infections comes from those alone who have tubercle bacilli in their sputum. In short, Effler declares, any tuberculous person with sputum must be regarded as contagious, whether tubercle bacilli can be found at the moment or not. As for that, he adds, the absence of sputum is only a transient phase, which at any moment may take an unfavorable turn. Tuberculosis must be regarded not as a condition but as a living process, and be managed accordingly.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 28, 1916, XXXVII, No. 104, pp. 1633-1648

65 *Hypertrophy of the Thymus. (*Contributo allo studio e alla terapia dell'ipertrofia timica.*) A. Gismondi.—p. 1634.

65. **Hypertrophy of the Thymus.**—Gismondi calls attention to the disturbances liable to occur from hypertrophy of the thymus not only from direct compression of the trachea and of the jugular blood vessels but of the veins supplying the brain and arm, thus impeding the circulation in the veins in the thymus which are already suffering from the fact of the hypertrophy. The result is a congestion in the thymus, a kind of erection of the gland, setting up a vicious circle, increasing the mechanical disturbances. The bronchial mucosa is also certain to be congested, and compression of the pulmonary veins interferes with the aeration of the blood. Severe asphyxia may develop suddenly at any moment and possibly prove fatal. The functional and physical symptoms denoting hypertrophy of the thymus are readily recognized if the possibility of the thymus being responsible is thought of. He describes a few typical cases to show that painting with iodin may induce the retrogression of the thymus, especially in young infants without alarming symptoms compelling haste. In older children prompt results can almost be counted on under Roentgen exposures. But he warns that this treatment must not be too violent, as he reports a case in which a mild tendency to rachitis was whipped up into a very severe form by a series of overstrong Roentgen exposures. His experience indicates that a dose of 5 or 6 H units is the extreme limit for a sitting, to a total of 20 units, using an aluminum filter. Franchetti and Pende have reported excellent results from administration of epinephrin in small daily doses. Pende combines it with hypophysis extract, having noticed that the combination of these two preparations seemed to have a special inhibiting influence on hypertrophy of the thymus.

Riforma Medica, Naples

1916, XXXII, No. 36, pp. 977-1004

66 Total Nitrogen, Cholin and Cholesterin in Cerebrospinal Fluid. C. Cantieri.—p. 977. Concluded in No. 37, p. 1009.
67 *Advantages of Rubber Sponge Tissue for Closing Gap in Skull. (Sulla chiusura delle brecce delle ossa craniche.) C. Scandola. —p. 983.

No. 40, pp. 1089-1116

68 Anomalies in Ductless Glands in Pseudo-Hermaphrodite Fetus. (Sulla presenza di cellule simil-gravidiche nell'ipofisi, di formazioni ghiandoliformi nella corteccia surrenale e di altri fatti degni di nota nell' apparato endocrine di un feto pseudoermafrodita.) R. Pellegrini.—p. 1089. Concluded in No. 41, p. 1123.
69 Importance of Rubber Gloves and Razor for Operating on the Wounded. (Piccoli contributi alla chirurgia di guerra.) U. Scinicarielli.—p. 1096.

No. 41, pp. 1117-1144

70 *The Action of the Toxins of Fatigue on the Circulatory Apparatus. L. Ferrannini and S. Fichera.—p. 1117. Concluded in No. 42, p. 1145.
71 Phosphorus Poisoning as Factor in the Severe Effects from Certain Projectiles. (Brevi considerazioni sulla natura di alcune ferite riportate in guerra.) G. Cautiero.—p. 1128.

67. **Rubber Sponge for Closing Gap in Skull.**—Scandola gives illustrations of the findings in a rabbit and a dog that had had a thin strip of rubber sponge tissue implanted in the hole left where the skull had been trephined. The animals were killed after nine and six months and, except for slight loose adhesion to the dura, the implant had not changed its place or given rise to disturbance of any kind, while during life the animals seemed entirely normal. In future he will use sponge tissue with an entirely smooth surface on the side toward the meninges. This, he thinks, will obviate adhesions. In connection with this account of his research he describes the various substances that have been advocated for plugging holes in the skull, and discusses the drawbacks of alien implants. When it is a question exclusively of an alien implant, his experience suggests rubber sponge tissue as eminently adapted for the purpose.

70. **Fatigue Toxins.**—Ferrannini has previously published an account of his research on the action of fatigue toxins on the muscles. He here describes his extensive study of the heart and vessels under similar circumstances. The work was done on frogs, rabbits and dogs. The findings all testify to a lowering of the blood pressure and bradycardia under the influence of the kenotoxins. The findings also suggest that these toxins act almost or entirely exclusively on the smooth fibers of the vessel walls.

Semana Medica, Buenos Aires

1916, XXIII, No. 42, pp. 379-404

72 Ophthalmology at Buenos Aires. (Breves consideraciones sobre el Pabellon Cleto Aguirre.) E. B. Demaria.—p. 379.
73 *The Lymphocytosis in Syphilitic Blood. (La linfocitosis sanguinea en los sifiliticos. Su valor diagnostico y pronostico.) C. P. Mayer and A. C. Gourdy.—p. 386. Concluded in No. 50, p. 628.
74 Proposed Tribunal of Honor in Argentina. (Colegio di medicos. Institucion de etica.) O. L. Bottaro.—p. 395.
75 Serum of Pregnant Woman Accelerates Hemolysis in Complement Deviation Tests; Male Serum Retards It. (Nuevos ensayos de diagnostico biologico del embarazo.) F. A. Deluca.—p. 397.
76 Insufflation of Air in Treatment of Pleurisy with Effusion. (Tratamiento de los derrames pleurales por la insuflacion de aire esterilizado.) A. Cetrangolo.—p. 399.

No. 43, pp. 405-430

77 Chronic Diarrhea of Tropical Regions. (Sobre la llamada diarrea cronica de los paises calidos.) P. J. Garcia.—p. 405.
78 Connection between the Hypophysis and Cholesterin. G. P. Goñalons.—p. 408.

73. **Lymphocytosis in Syphilitic Blood.**—Mayer and Gourdy recall that the Wassermann reaction does not occur exclusively in syphilitics, and that it is by no means infallible. Its findings may sometimes be supplemented by the discovery of lymphocytosis in the blood. When lymphocytosis is discovered and when it becomes more pronounced with or without treatment, even with a negative Wassermann reaction, syphilis should be suspected. They found lymphocytosis pronounced, in some of their long series of cases reported in detail, as early as the second, eighth or twelfth day after infection, often before the Wassermann test elicited a positive response. The lymphocytosis in one case at the eighth day was 49.33 per cent. The highest figure, 64.66 per cent., was in a young man twenty-nine days after the primary sore had first become manifest. No treatment had been given in most of these cases; when it was commenced the numbers of lymphocytes increased. In the first series of fifty-two cases of recent untreated syphilis, the lymphocyte count was within normal range in only nine, and in these there was some concomitant suppuration, probably modifying the blood picture. In some of these cases the lymphocytes within normal range promptly ran up to exceptionally high figures as soon as treatment was instituted. The average of the lymphocytosis in this series was 36.54 per cent. They call attention in particular to the case of a young man whose erosion dated from only two days and the lymphocytes numbered 34 per cent. The Wassermann test was negative. Twelve days later the erosion had become transformed into a typical syphilitic hard chancre with swollen inguinal glands, and specific treatment was instituted. The lymphocytes at this time were 38.66 per cent., but the Wassermann was still negative. Two weeks after this there was lymphocytosis of 40 per cent. and a positive Wassermann reaction. Two weeks later superficial manifestations of syphilis became apparent. Under specific treatment, by the end of six months the Wassermann reaction was faintly positive with lymphocytosis of 42.33 per cent.

This study of the diagnostic importance of lymphocytosis in syphilis is continued through ten numbers of the *Semana*, the differential blood count in nearly 200 cases being given with the brief clinical history, all confirming the practical constancy of lymphocytosis as about the first appreciable general sign that the spirochetes are installed.

Siglo Medico, Madrid

December 16, 1916, LXIII, No. 3288, pp. 801-816

79 Malaria in Spain. E. Luengo.—p. 802. Continuation.
80 Mechanisms Regulating the Metabolism. A. Pi y Suñer.—p. 808. To be continued.

Hospitalstidende, Copenhagen

January 3, LX, No. 1, pp. 1-24

81 Magnesium Sulphate in Treatment of Tetanus. J. Nordentoft. —p. 1.

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CERTAIN ASPECTS OF NATURAL AND ACQUIRED RESISTANCE TO TUBERCULOSIS

AND THEIR BEARING ON PREVENTIVE MEASURES *

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In choosing so shopworn a subject as tuberculosis, I have before me the fact that the progress of scientific theory and practice is dependent less on rapidity than on direction of movement; less on the quantitative accumulation of information than on the proper interpretation and correlation of what is actually in hand. Of the information which has been brought together concerning tuberculosis, much is contradictory; much lacks coordination with other data; not a little has been the product of commercial stimulus. The task before the lecturer is best fulfilled by indicating existing gaps, rectifying misinterpretations, pointing out the inadequate support given by science to many accepted doctrines, rather than by rehearsing what is either well known or accessible in the literature of the subject.

In dealing with so intricate a theme, on which so much has been written and which has been approached experimentally and clinically from so many different angles, I have thought it best to treat the tubercle bacillus biologically, that is, as a living entity with a complex, adaptive organization, and to follow it step by step in its movements through the body.

Before taking up the details of this journey, permit me to refer briefly to the parasitic cycle which I have discussed elsewhere at length and which will form the subject of a forthcoming publication.

THE PARASITE CYCLE

The peculiar, complex life of a parasite of higher animals imposes on it certain definite restrictions, and compels it to move along certain definite routes. Thus each infectious agent must enter the body cavities or the body tissues. It must multiply therein to secure a numerous progeny, which must successfully escape from its host and, lastly, find its way to another host. This complex cycle, comprising four distinct stages, each very different from the others, demands of the parasite the capacity for adapting itself to some portal of entry, and of protecting itself from the antiforeign activities of the host tissues while it produces a progeny to meet the exigencies of the trip to another host. It must have adapted itself to some portal of exit and to some active or passive carrier to another host. These various demands are most thoroughly met by the highly developed protozoan and metazoan parasites. Certain highly specialized bacteria must have developed equally marked capacities for meeting these demands, but they are not so much in evidence, since the minute size of bacteria does not permit us to recognize those morphologic structures which go with functional adaptations to the different phases of the cycle. We must for the time being content ourselves with determining through immunologic reactions the changes undergone by bacteria in their different stages through the body.

Fitting the tubercle bacillus to the various stages of this cycle, we may perhaps obtain a view of its activities at an angle somewhat different from that from which bacteria are usually viewed. We have been in the habit of regarding the pathogenic bacteria as known, fixed quantities and the animal body as the adaptive, variable element. By applying what is known of pathogenic bacteria to the stages of the cycle, we shall see that parasites, including bacteria, must change their behavior from step to step to meet the host conditions at entry and exit and in the active tissues, and that these modifications are due to definitely fixed, highly developed functions of the parasites. The fact that such parasites have survived through eons of time, that they may have survived the original hosts and migrated through a series of such hosts to man and our domestic animals is a sufficient proof that their capacity for adaptation was adequate and that the organisms capable of such prolonged existence are not so simple as we have been inclined to believe.

Beginning with the entry of tubercle bacilli into the body, we are at once confronted by the problem of immunity. The condition in which tubercle bacilli leave the patient is of prime importance to the succeeding infection. This question I must leave, however, until farther on. I would simply make the statement here that the bacilli must have been influenced in some way by the developing resistance of the host from which they came.

THE PRIMARY LESION

The old controversy concerning the production of primary lesions at the portal of entry has not yet been settled and is not likely to be very soon, for no fast and sharp distinctions are possible. Whether an inhaled bacillus will cause lesions in the lung tissue where it is deposited or be carried directly in the lymph current to the associated lymph nodes will depend on the character of the tubercle bacillus, the form in which it entered the air tubes, that is, dried or in droplets of sputum, the age of the person, the condition of the lungs as regards the lymph current, localized pressure on the lungs by the ribs, and so on.

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* Second Mellon Lecture, delivered before the Society for Biological Research, University of Pittsburgh, May 17, 1916.

* The length of this article requires that it be published in two parts. The second section will appear next week.

To these must be added the degree of natural resistance of the individual, any preceding tuberculous infection furnishing some specific resistance, and the existence of abnormal processes in the air tubes and lungs. Baumgarten, Weigert and, of recent writers, von Pirquet are inclined to the view that tubercle bacilli always produce lesions at the portal of entry.

In addition to the human material on which this question has hinged, a more homogeneous material to study this problem is presented by the independent bovine disease. More than twenty years ago, after a careful study of necropsies on many animals in early stages of tuberculosis, I pointed out the predilection of the invading tubercle bacilli for the lymph nodes. Infection of the upper respiratory tract was revealed, rarely by tuberculosis of tonsils or other superficial structures, but chiefly by disease of the associated lymph nodes. Similarly, inhaled bacilli multiplied in dorsal mediastinal and bronchial lymph nodes according to the lobe of the lung in which the bacilli alighted and through which they were transported. Disease of the lungs, however, was not uncommon. Tuberculosis of the intestinal mucosa was very rare, even when bacilli were being discharged from the lungs. The mesenteric lymph nodes were the primary seat of multiplication.

Furthermore, after generalization of the disease had taken place, there was still a predilection shown for the lymph nodes. Bacilli passing into the liver would leave no macroscopic effects, but would cause extensive disease of the portal lymph nodes. Similarly, the infection passing into the kidney would leave as the only sign of its presence tuberculous renal lymph nodes. It will be of interest to quote certain statistics obtained by careful necropsies of apparently healthy cattle which gave positive tuberculin reactions.

In a herd of sixty head, fifty-three were found with lesions, some very slight. Of these fifty-three, twenty-seven were without visible lung lesions, but with thoracic lymph nodes involved. Only one had lung lesions without associated lymph node infection.

In another herd of thirty-four infected animals there were eleven with thoracic nodes involved, but without lung lesions. There were none with lung disease and without disease of the associated lymph nodes.

Of ninety-one head of tuberculous cattle, twenty-five had the thoracic lymph nodes and not the lungs diseased.

Similar figures could be quoted with regard to the involvement of neck and mesenteric lymph nodes without corresponding lesions of mucous membranes. That bacilli had passed through the udder was shown in enlarged and caseous pubic lymph nodes even when no macroscopic lesions of the udder tissue were in evidence.

As stated at the outset, settling down and multiplication of tubercle bacilli may depend on a number of diverse mechanical, pathologic and immunologic factors. A satisfactory clearing up of the question involved is not possible at present, and I shall delay only to call attention to two divergent interpretations:

1. The tubercle bacilli inhaled are probably picked up in the alveoli by phagocytic cells (so-called *Staubzellen*) and carried into the regional lymph nodes as foreign particles, or they may be carried in the lymph as free particles to the same destination. The primary tubercles [illegible] develop in or near the dust or pigment laden zone of the nodes as a result of the multiplication of the bacilli.

2. The tubercle bacilli may multiply and produce only microscopic lesions at or near the portals of entry, as, for example, in the lymphoid tissue of the lung itself. Thence bacilli may be transported to the regional lymph nodes after caseation of the primary focus, and produce macroscopic lesions.

If the second view is accepted, it becomes necessary to explain why such lesions remain so small as to be unnoticed and why the lesions in the lymph nodes become large, knowing as we do that lung tissue is not resistant, but rather the reverse, and that sooner or later in the course of tuberculosis the lungs become involved.

THE INFECTION OF LYMPH NODES

The same problem is presented to us in the infection of mesenteric lymph nodes. Are the bacilli transported directly to them from the intestinal contents, or is there multiplication in some lymph follicle of the mucous membrane? Here also it would become necessary to explain why such microscopic lesions do not continue to enlarge and become visible later on.

Primary lymph node disease occurs quite generally in the young of both man and cattle. The interpretation which I have given heretofore and which still appears valid is that such localizations, subject to the conditions noted above, are a sign of the absence or lack of tissue response to invasion at the point of entry or on the way to the lymph nodes. This response comes later on, either as the result of earlier infection or of a heightened general resistance. It is now called sensitization; but sensitization may be simply an accompanying phenomenon.

The passage of tubercle bacilli through membranes to the regional lymph nodes without leaving any traces of their passage has led certain writers to utilize this phenomenon in their endeavor to prove that pulmonary tuberculosis may be and frequently is of intestinal origin. No one will deny that this is possible, but that it occurs often or regularly is highly improbable. Bacilli which enter the portal circulation directly from the intestines may escape through the liver into the lungs, as occurred in a case of tuberculosis in a fetal calf found by me some years ago. The lymph nodes of liver, kidney and lungs were affected, but not the organs themselves. Such bacilli must run the gantlet of the very efficient liver filter. On the whole, the intestinal origin of pulmonary tuberculosis remains to be demonstrated.

The predilection of tubercle bacilli for lymph nodes, and the occurrence of the earliest lesions there as a result of multiplication is apparently not in harmony with Bartel's theory that lymph nodes are protective, or with Murphy's results, which point to lymphoid cells as inhibitory agents. The conflict, however, may be only apparent, depending on the interpretation. I venture to suggest one such harmonizing interpretation which must, however, await demonstration. This interpretation involves the well known fact that organs and tissues of the same host differ in their behavior toward the same infecting agent. In the case of tuberculosis, the lymph nodes are the first organs to engage the tubercle bacillus. It seems as if they contained some factor absent in the tissues passed through by the invading bacilli. This factor, though apparently unsuccessful in suppressing multiplication, makes a beginning in this direction, whereas the tissues through which the bacillus passes are not yet prepared to do so.

The lymph node disease is only a preliminary stage of the infection. It is like a shot that missed its goal. The process sooner or later comes to a stop, and the usual well known degenerative changes go on. If all cases ended this way, tuberculosis would soon die out. The bacilli must reach some organ or tissue whence they can be shed outward. This occurs when the bacilli multiply in the tissues of the lungs, intestines, liver, kidney and bladder, uterus and tubes, testicles and skin. All these forms of tuberculosis occur, but the predominant type is pulmonary tuberculosis. The bacilli after inhalation settle down, and after multiplication and destruction of lung tissue pass out again. This is the type of disease which has been evolved into a fairly well balanced parasitism.

The bacilli which have been, as it were, marooned in the lymph nodes, in order to gain their final habitat in the body must in some way break away from the lymph nodes and eventually reach the lungs. That this goes on regularly is at present the popular theory, advocated originally by von Behring, and championed by Römer, Much and others. According to them, the infection gained in infancy or childhood reaches the lungs during adolescence or later. There is no denying that this may occur, but there is another possibility not to be lost sight of, and that is reinfection from without, to which I shall return later.

The shedding of the bacilli from the lungs completes the cycle of the bacillus. This cycle tends to fix suitable races and eliminate others. Strains too virulent, which are fatal before lung tissue breaks down, naturally disappear. Those which are of such slight virulence that they remain buried in the lymph nodes also disappear. Only those in between these extremes are likely to be passed on from case to case, thus giving the form of the disease and the virulence a certain stability.

TYPES OF BACILLI

These are the chief biologic facts which underlie the epidemiology. On them is based the development of races of tubercle bacilli. Research has brought to light the fact that there are three distinguishable types of the tubercle bacillus with characters sufficiently fixed to have resisted thus far experimental transformation. These types resemble one another so closely that Koch himself did not in his early monograph regard them as distinct. The extensive studies on variation among bacteria now before us make it probable that there was a common ancestor from which the human, bovine and avian types have sprung through adaptation to special hosts. Another possibility is that these types are plastic habitat varieties, and under certain conditions transformed, one into the other. Many experiments extending over long periods of time have failed to change, for example, the human into the bovine type. Where such transformation has been claimed, the accidental coexistence of the two types in the same subject has not been clearly disproved. There is, however, still room for further experiments, for the subject is of great importance. Though it may have little significance in the daily give and take of infection, transformation, if it goes on, may be a way of reintroducing infection into a purified community of man or animals.

Other races of tubercle bacilli may in time be produced. Thus, in swine the bovine bacillus produces a relatively rapid, generalized disease. Should swine discharge such bacilli and infect other swine and these again fresh subjects, the bovine bacillus thus transmitted from pig to pig might eventually be more or less modified and become a recognizable porcine type. A similar change might take place in those aberrant types which attack monkeys. The establishment of such new types might require long periods of time combined with specially favoring cooperating conditions.

The bearing of such races on the public health must be determined for each in particular. Host relationships of parasites and of infectious agents cannot be predicted. They depend on conditions beyond our present knowledge. These often bind together hosts standing far apart zoologically. Thus the mouse septicemia bacillus, although virulent for mice, is not so for guinea-pigs, but is highly virulent for pigeons. Of birds, the parrot is thus far the only species susceptible to the human type of tubercle bacillus.

In the past twenty years the bovine tubercle bacillus has absorbed much of our attention because the human being is to a certain degree susceptible to it. It tends to produce lymph node disease in the neck and the mesentery. Occasionally generalization results in fatal miliary tuberculosis or in meningeal localization. In general it may be said that this type of tuberculosis is a food disease, and can be stamped out by adequate and relatively simple measures. It does not concern epidemiology, for it does not pass from man to man because of lack of opportunity. In only five out of approximately 800 cases of the pulmonary disease studied was the bovine bacillus found. The entire question of bovine tuberculosis in man should be dealt with apart from the great problem of the genuine human disease.

Concerning the races of the tubercle bacillus with reference to their effect on various hosts, it may be said in general that toward the species to which they are adapted they produce at the start a purely localized disease, in which further progress depends on a variety of contributory agents. Toward species to which they are not specifically adapted their behavior varies. The bovine type is quite regularly more virulent toward other host species than toward cattle. It is also more virulent than the human type toward alien hosts. To this general rule the human subject is an exception, for many cases of cervical lymph node tuberculosis due to bovine bacilli are either stationary or very slowly progressive. The avian bacillus acts very differently from the other two types in that its virulence for mammals generally, including man, is a negligible quantity.

Returning to the human disease, we may accept as the type disease in civilized countries that form of tuberculosis known as phthisis, in which the infecting agent enters and leaves by the same route, which is also the shortest and safest route, and considered as aberrations and deviations all other forms of the disease. By thus standardizing the disease we are put into a position to study more systematically and to evaluate these aberrations and deviations which occur either at the start or later.

HUMAN TUBERCULOSIS

This deviation from the type is the primary lymph node disease. The infection for the time being is locked up. A deviation subsequently from the type is the spreading of the disease by contiguity, by aspiration, by progression along lymph routes, and by invasion of the blood and hence of various organs and tissues. We may here digress a moment to discuss the analogies of the primary focus with that of other

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more acute infections. A localized primary seat of multiplication of virus is usually not regarded as indicating actual disease until there is evidence that the virus has become disseminated to form new foci. The line to be drawn in practice between these two states is as a matter of course vague, because one state may follow another rapidly. It is well, however, to maintain the theoretical distinction. In tuberculosis the primary focus may not be overstepped; the infection may come to an end there by hygienic treatment, or else there may be a long interval between the development of the primary focus and further dissemination. It would be well if we regarded the primary focus as an infection and the actual disease as begun only when new foci appear.

A theoretical distinction between infection and actual disease opens before us the question as to how often in other infectious diseases a primary focus is developed and checked without being recognized. We are in the habit of assuming that when clinical evidences of disease are absent, no multiplication has taken place. In this, however, we may be in error. Whatever multiplication takes place may be simply below the threshold accuracy of our detecting methods. This distinction between infection and disease will also help to classify those many cases of primary healed or stationary tuberculosis discovered at necropsy. While they are in a sense evidence of the ubiquity of tubercle bacilli, they are hardly to be classed as cases of tuberculosis.

The difference between tuberculosis and more acute infectious diseases may be expressed in a general way by the statement that in tuberculosis the various steps of the disease are drawn out, segregated as it were, and therefore accentuated and made conspicuous. This accounts for the emphasis laid on the primary focus, which stands out distinctly as it is the only expression of the disease for a time. In the acute infections the primary focus is either concealed or else merged with the generalized stage.

TYPE OF DISEASE

Returning to the theme, we may consider further the deviations from the current type of tuberculosis. One of the most important factors in such deviations is dosage of virus. In all experimental infections on animals the dosage is of great influence in determining the course of the disease. Large doses may lead to multiple primary foci. I have seen in cattle primary lymph node tuberculosis of the throat, the thorax and the mesentery, all in the same stage, and to all appearances a result of some one dose of virus. The significance of the size of the infecting dose is now so generally understood that I need not delay here.

The type of disease is further modified by variations in virulence and other characters of tubercle bacilli. That individualized strains exist is known to all students of tuberculosis. Special features of such strains remain conspicuous during years of artificial cultivation. Unfortunately, very little has yet been done in studying systematically the relation between severity and acuteness of tuberculosis and the character of the infecting strains.

The type of disease is further influenced by racial characters of the host, and by individual characters, such as rib pressure, lung ventilation, etc. Certain industries, such as coal mining, have been regarded as in a sense protective. Here again a study of the influence of various kinds of dust should enter. The training and activity of dust cells and other phagocytes by some relatively harmless kind of dust may play some part in the prompt reaction to invading tubercle bacilli.

The type is furthermore influenced by intercurrent diseases, such as measles, pneumonia and whooping cough. Here we must decide between the behavior of normal and acquired resisting forces, the so-called antibodies, and the influence of mere inflammatory and congestive processes in spreading a localized infection.

Finally, severe physical exertion may play a very important part in the dissemination of the virus. Parturition is known to be such a factor. Similarly in cattle, parturition is frequently followed by generalization of a local tuberculosis and speedy decline and death.

The influence of an untoward environment in general has been frequently cited as an aggravating factor. Confinement in dark, damp, ill ventilated rooms, depression of vital activity due to want of suitable food and too low temperature are causes which impress us as adequate and which need some more detailed analytic studies.

RELATION BETWEEN THE TUBERCLE BACILLUS AND THE TISSUES OF THE HOST

We now come to the chief problem of tuberculosis, the behavior of tubercle bacilli within the body. This behavior is governed by the limitations imposed on both host and parasite by the exigencies of the parasitic cycle already referred to. These limitations we may overstep in our experiments to obtain underlying principles. We have not only the natural diseases of human, bovine and avian tuberculosis to study, in which a certain unstable equilibrium between parasite and host has been established by nature, but we may produce experimentally disease by inoculation in host species in which the parasite is always in the ascendency and invariably destroys the host. We may also study the behavior of tubercle bacilli in those animals in which the host invariably predominates and promptly checks the bacilli. In the host of limited susceptibility, bacilli must multiply to supply a numerous progeny for dissemination and yet spare the host for a period at least. What are the conditions favoring and opposing such multiplication? The play between host and parasite is evidently very complex.

Histologic studies show that in tuberculosis of man and animals the tubercle bacilli are encountered within cells of a certain type, known as epithelioid and derived probably from cells of endothelial origin. By using trypan blue as a vital stain, Evans, Bowman and Winternitz have recently endeavored to elucidate more definitely the source of the cells entering into the reaction. They limited their studies to the liver following the injection of the dye and of tubercle bacilli into a radicle of a mesenteric vein. They found that the so-called Kupffer cell forms the center or giant cell of the tubercle.

In man and most animals, the lesions resulting from spontaneous and induced tuberculosis are focal and form the so-called tubercle. In white mice, inoculation of avian bacilli leads to active multiplication within endothelial cells until the latter are filled with bacilli. The infection creeps from place to place by way of blood and lymph stream. Tubercles are not formed.

The conditions operative when tubercle bacilli multiply rapidly or slowly or when they are suppressed and destroyed may reside within the endothelial phagocytes or in the blood and lymph or in both. Researches have not yet thrown any light on this phase. Opie has described the presence of lymphoprotease or leukoprotease or both enzymes in case both kinds of cells are present which give rise to these enzymes.

A prominent earmark of tuberculous tissue is its degradation sooner or later into a peculiar cheesy mass. Caseation has been referred by some to the structure of the tubercle, which, being without a vascular supply, is destined to become necrotic centrally sooner or later. Others have referred the process to the active toxins of tubercle bacilli. It is probable that there are two kinds of necrosis, one due to nutritive disturbances, the other to direct activity of rapidly multiplying tubercle bacilli. Jobling and Petersen find one of the causes of caseation in the tubercle bacilli. The unsaturated fatty acid soaps present act antitryptically and against leukoprotease and thus lead to caseation.

The interpretation of what goes on in tuberculous foci which leads to such diverse sequels as sclerosis, caseation, or continuous extension of the process will depend on the cooperation of immunologic, histologic and biochemical researches on the spontaneous and induced disease of a variety of differently reacting animals. We know definitely that caseation or calcification does not mean the destruction of all tubercle bacilli, for the latter are always discharged after caseation. They and the disease depend for their continued existence on this process of disintegration. Otherwise an escape to another host could not take place. In general, the tubercle is analogous to the abscess. Both processes tend to circumscribe, confine and discharge the micro-organisms outward. Neither pus nor caseous matter is in general free from the specific bacteria which gave rise to it.

Besides the proliferative tendencies of tubercle bacilli leading to the characteristic tubercle and to the more diffuse accumulation of endothelial cells, inflammatory reactions may be produced, especially when large numbers of tubercle bacilli of relatively feeble virulence are injected into animals. In the case of a human type bacillus injected intravenously into calves, I observed a pneumonic condition due to extreme congestion, the presence of masses of fibrin in alveoli, desquamation of alveolar cells, and in some cases an abundance of polymorphonuclear leukocytes. The long standing controversy concerning the proliferative and the exudative tendencies of tubercle bacilli may be harmonized by pointing to variation in the numbers and virulence of tubercle bacilli and, in experimental work, to the presence of attenuated, weakened and dead bacilli in our cultures injected into animals.

The secretory and excretory products resulting from the metabolic activity of tubercle bacilli and the various substances making up their bodies are sufficiently diverse to account for various reactions on the part of host tissues. We have now reached a stage at which the significance of diverse tissue reactions should be the object of investigation rather than of controversy. Without a thorough interpretation of tissue reactions, the serologic reactions may not be properly understood.

THE TUBERCLE

Of the various products of reaction associated with the presence of tubercle bacilli, the tubercle is the most frequently encountered. It suggests the result of activities which on the part of the host confine the spread and check the multiplication of the bacillus, and which on the part of the parasite tend, in the caseation and liquefaction of tissues, to furnish a temporary protection, a vehicle and an exit for the bacilli. The tubercle, owing to its predominance in the mammalian host, may well be regarded as the typical reaction, and all histologic expressions differing from this should be utilized for illuminating, if possible, the typical reaction. In this reaction we note that endothelial-like cells are primarily involved and that polymorphonuclear leukocytes do not appear.

The influence of a humoral factor antedating the formation of the tubercle cannot be predicted. This would naturally depend on the rapidity with which the bacilli are taken into the phagocytic cells, in other words, the time of exposure to destructive bodies in the blood and lymph. Rous has shown experimentally that leukocytes may protect engulfed objects from antibody activities. The extent to which protozoa may use host cells into which they enter actively or are taken in passively had made this interpretation a logical one. Phagocytosis, like any other reaction, may represent in some diseases one as yet unadapted to the self-protective interests of the host. In any case it is necessary to bear in mind that the taking in of parasitic organisms, such as bacteria by the host cells, may lead (*a*) to prompt destruction of the bacteria, (*b*) to a limited multiplication compatible with cell life of the host for a time, or (*c*) to rapid multiplication of the parasite and destruction of the host cell, resulting in liberation and migration of the parasite to other cells. In any disease associated with passive intracellular sojourn of the parasitic agent, the exact function of the phagocytic cell needs elucidation before we can be sure of the humoral factors. Or perhaps the reverse may be indicated. By measuring the resisting and destructive factors in the fluids of blood and lymph, we may be able to measure with greater promise of success the precise significance of phagocytic processes. The controversies between the adherents of humoral and those of cellular protective mechanisms, as represented, broadly speaking, by the schools headed, respectively, by von Behring and Metchnikoff, which stimulated so much special research for several decades, have done much to define the problems. But by neglecting to restrict their theories and inferences to the micro-organisms actually used in their studies, investigators of that period left the more profound study of specific infections and parasitic diseases open. The marvelous work of the period mentioned will be seen in its true light when it has been sifted and reapplied.

ANTIBODIES

A study of those factors resident in the blood of normal, tuberculous and vaccinated individuals has not as yet developed more than possibly diagnostic uses. To what extent the so-called antibodies may be concerned in active immunity cannot be answered at present. Möllers in 1912 summed up the situation as follows:

> Agglutinins and precipitins are inconstant in spontaneous tuberculosis, but they appear in the experimental disease. Opsonins are either slightly reduced or fluctuating. Complement-fixing bodies appear after the injection of living and dead bacilli. The blood of nontuberculous individuals does not contain them, but they have been found in tuberous leprosy. These complement-fixing bodies are encountered in from 6 to 8 per cent. of tuberculous individuals. They may be

developed toward various preparations of the bodies of bacilli *and only* against the one employed.

How these normal and immune antibodies cooperate with or are utilized by phagocytic processes has not been made clear, as shown in the case of opsonins. Here the examination of the blood in vitro indicates that opsonins stimulate polymorphonuclear leukocytes to take up tubercle bacilli. Since the polymorphonuclear leukocytes do not play any recognizable part in the tuberculous process, it is difficult to understand the significance of the opsonic phenomenon. Tests are usually made with bacilli well saprophytized or else ground and suspended. Substances may thereby be set free which react very differently from the intact bacilli, which pass from case to case and which run the gantlet of the immune reactions of a well developed case of disease. Those cases in which polymorphonuclear leukocytes appear in the lesions at some time in the course of the tissue changes should be carefully studied. Unless, however, cultures have been made to determine the presence or absence of pus producers, mere histologic examination is of no avail. But even after cultures have been made, there still remains the residual possibility that uncultivable, ultramicroscopic, secondary invaders have been on hand. Since the polymorphonuclear cell reactions occur chiefly with lesions associated closely with the exterior, such as tuberculosis of the lungs, the genito-urinary tract and the subcutis, the inference that other microorganisms are the chemotactic agents cannot be denied offhand. For such investigations the experimental animals, especially the larger, more resistant animals in which the disease runs a course similar to that of the human disease, are best adapted, since they can be destroyed at any stage and terminal infections largely anticipated.

RELATION OF LYMPHOID TISSUE

The relation of lymphoid tissue to tuberculosis was briefly mentioned above, but it deserves more consideration. The structure of the tubercle is not only the same in the various organs of the same host, but it is practically the same, with only minor variations, in all mammalian species inoculated with bovine or human types. The avian type is an exception so far as it frequently fails to induce tubercle formation, although the cells involved are of the same type. When lymphoid cells are present, what is their significance? Mantles of lymphocytes are not infrequently found enveloping epithelioid cell groups, but such a combination may be due to the evolution of a tubercle in lymphoid tissue with the proliferation of endothelial elements centrally and the crowding back of the lymphoid cells toward the periphery. This is the usual picture in the early stages of tuberculosis of the lymph nodes. J. B. Murphy and A. W. M. Ellis exposed mice inoculated with bovine bacilli to the Roentgen ray and found that such exposure increased susceptibility. The authors infer therefrom that lymphocytes are important agents in the defensive mechanism against tuberculosis. On the other hand, P. A. Lewis found that in mice, splenectomy increased very materially the survival period after a given dose of bovine tubercle bacilli.

In some investigations on bovovaccination, I reported some years ago as a by-product peculiar lesions associated with the presence of animal parasites in cattle which had received intravenous doses of tubercle bacilli of the human type. Although no macroscopic lesions resulted from such injections in otherwise normal animals, the presence of animal parasites in the tissues seemed to alter the local equilibrium. Filariae probably embedded below the epithelium of the omentum became enveloped in a zone of lymphoid cells, in which were observed occasional foreign-body cells; but nothing characteristic of the tissue reaction of tuberculosis was detected. The type of parasite did not determine the reaction, for an entirely different microscopic form in the lung tissue gave rise to a lymphoma from 4 to 5 mm. in diameter. Ordinarily no such reaction follows the localization of filariae in cattle, nor do we find tumors developing about accidental parasites in the lungs, probably aspirated during the taking of fluids. A tentative explanation of the peculiar cell reaction may be given if only to stimulate the attention of others to such accidental by-products of experiments. The presence of the parasite in some way reduces the resistance of the tissues in its immediate environment, so that the human bacillus can multiply to a limited extent. The reaction to this multiplication is of such a character as to lead to the lymphoid-like tissue described rather than to the usual endothelial cell accumulation. The newly proliferated tissue in turn destroys the life of the animal parasite around which it forms. This event would probably in time be followed by another type of cell reaction, the foreign body giant cell (of which a beginning had already been made in the cases described) as soon as the parasite begins to disintegrate.

I recently described the predominance of lymphoid cells in certain types of experimental tuberculosis. The relative resistance of calves to the bovine type of bacilli was raised by two preceding injections of human bacilli. The final intravenous injection of the bovine type led to a peculiarly modified tissue reaction. The special feature of this reaction to interest us here is the great predominance of lymphoid cells, and the relative rarity of epithelioid and giant cells. This occurred not only in the lungs, but also in the udder. Both this group of cases and those relating to the combination of parasite and tubercle bacilli described above suggest that the bacilli undergo a preliminary modification in the fluids of the tissues, owing to humoral factors, and that the modified cell reaction is a response to a modified stimulus resulting from the humoral treatment. That the cell reaction of the untreated but parasitized cattle to the human type should be the same as the reaction of partially immunized cattle to the bovine type is noteworthy.

Finally, there should be mentioned here certain experiments of E. L. Opie on induced tuberculosis of the dog. Opie treated induced tuberculosis of the pleura in dogs with leukocytes obtained also from dogs following the injection of turpentine into the pleural cavity. The disease was favorably influenced by these intrapleural injections, especially when the injected leukocytes were in direct contact with the tuberculous tissue. In some cases complete restoration of the pleura took place. The cells injected consisted of polymorphonuclear and mononuclear cells in about equal numbers. The evidence pointed to the inference that only living leukocytes can accomplish the results observed.

(To be continued)

Contributing Causes.—Unemployment, overwork, congestion of population, child labor, and the hundred economic causes which increase the stress of living for the poor are often contributing factors in the production of mental diseases.—Rosenau.

URETER CATHETER DRAINAGE IN THE TREATMENT OF RENAL INFECTIONS

WITH SPECIAL REFERENCE TO THE INFECTED HYDRONEPHROSIS COMPLICATING PREGNANCY *

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Modern urology owes its progress and substantial development in a great measure to conservatism, through which crude and often radical measures have been supplanted by scientific and accurate methods. This has been contributed to chiefly by the cystoscope and its accessories, preeminent among which stands the ureter catheter. It is perfectly safe to say that the ureter catheter has afforded us more real information than any other urologic instrument. Its use as a diagnostic aid is thoroughly known and appreciated by practically every one, and needs but little comment. There are a few, and there should be a very few, who still believe that ureter catheterization is a major procedure, attended with a great deal of traumatism and shock. I am unable to understand why this idea still prevails, for the procedure itself is certainly simple and attended with very little pain, seldom more than accompanies any instrumentation, and rarely necessitating a local anesthetic.

As a therapeutic agent it has served a gradually broadened field of usefulness. Since its first employment by Bozemann in 1888, and a little later by Pawlick and Kelly for lavage of the renal pelvis, it has displaced many radical surgical procedures which have been applied to numerous renal and ureteral diseases, of which may be mentioned certain hematurias, closure of renal and ureteral fistulas, removal of ureteral calculi, dilatation of ureteral strictures, relief of anuria, and finally the treatment of various types of renal inflammations. I do not intend to discuss its application to all of these conditions, but will confine myself in this paper entirely to its use in certain types of renal infection. Neither do I intend to enter into a discussion of the treatment of the ordinary forms of chronic pyelitis and pyelonephritis, as such treatment is so universally employed that it is thoroughly understood and appreciated. I shall discuss its value as a means of conservative surgical drainage for infected renal retentions, first, as a method of preparation; second, as a method of conservation, and third, as a method of cure, dependent on the extent and character of the disease and of the associated phenomena. Naturally such renal retentions as are consequent on definite pathologic obstruction within or without the urinary tract, such as ureteral stone, ureteral stricture, prostatic enlargements or extraneous tumors, will be relieved by the correction of such primary causes. There are, nevertheless, two classes of renal retentions which are of particular interest and demand prompt relief: first, those of obscure etiology, in which no tangible pathologic foundation can be ascertained, such as aberrant blood vessels, etc., and second, those secondary to physiologic obstruction, namely, the pregnant uterus, in which it is desirable if possible to preserve the cause of the obstruction. I shall not discuss the many phases of the pathology of renal infection, but will consider only the retentive type with the variations in the pelvis which seem to have a definite bearing on the curability of the disease by means of conservative measures. The normal pelvis is practically empty, the urine presses on by peristalsis from the papillae down the ureter, and pelvic residual urine is of pathologic significance. Should the residual urine in the renal pelvis become infected, the chance of cure will be dependent largely on its character and extent, also on the changes in the pelvic wall, and certainly in the kidney itself.

The three grades of renal retention which Perineau has described seem very pertinent, namely, the first, second and third degree, dependent on the amount of distention and destruction of the elastic tissue and muscle fibers of the renal pelvis, and of the accompanying kidney damage.

In the first stage, the retention is small, the contents are under great pressure, the fibers are under tension, but have not lost their tone, the catheter inserted into the pelvis brings forth urine in a jet, and renal function is little, if at all disturbed.

In the second type there is a more pronounced dilatation, and the muscle fibers are more weakened and feeble, but are still capable of returning to normal function if relieved of the strain of intrapelvic pressure. A catheter inserted into such a pelvis gets urine in drops, influenced by pressure on the kidney, the ordinary hydronephrotic drop; renal function is impaired.

In the third degree the kidney is encroached on materially, pelvic fibers are overstretched, incapable of returning to their normal; renal function is greatly impaired or destroyed.

In the first type of retention the patient has an excellent chance of cure. It has been our experience that one or two catheterizations with relief of the retention will suffice to clear up this type. On inserting the catheter, cloudy urine escapes, becoming more cloudy as it gets to the sediment. Following relief of retention there occurs a normal intermittent secretion of clear urine, usually in a very short period.

The second group of cases, in which the retention is much more pronounced, and the kidney function impaired, is often a very deceptive one, and unless one is careful a false impression may be gained of the extent of the pathologic condition, and it pays to be conservative as to our prognosis and plan of therapy. Often these patients are quite sick, with fever, chills, tenderness and mass in the kidney region, the urine is dirty with pus and bacteria, and the cystoscope may show a thick inspissated pus plug oozing from the ureteral orifice on the corresponding side. Such a picture suggests a large pyonephrosis. On inserting the catheter into the kidney and cleaning out the plug from the ureter, there is usually a large amount of milky, pale urine. The function of this kidney will be practically nil. We have seen a number of such cases in which the phenolsulphonephthalein would be hardly readable within a half hour after it had appeared following an intravenous injection. Such a picture would apparently indicate that the kidney was practically destroyed, but on drainage of such kidneys by means of the ureter catheter, leaving the catheter in place for several days, and in some instances by intermittent catheterization, they may assume fairly normal function. Such kidneys in which there has been a definite

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pyelonephritis are prone to recrudescences. The urine in these cases has in several instances become clear, and culturally negative. An occasional pus cell, however, is a common finding. This is the type which Rafen calls aseptics and not cures. I feel that if we can rid these kidneys of infection we have accomplished our aim, whether they are functionally disturbed or not.

Often some of the large retentions after drainage will completely empty themselves when the musculature of the pelvis has regained its tone. This group of cases is the group in particular in which great care has to be exercised in our surgical procedure. Many such patients are nephrotomized when they are acutely sick, and I believe that many could be spared and have a much better chance by drainage with the catheter. Should they be extreme and bordering into Group 3, and not be curable, they can be so improved as to make them far better surgical risks, excepting of course the large pyonephroses, which will not drain through a catheter.

Group 3, infected renal retentions in which there is an irreparable damage to the kidney, where functional tests following catheter drainage have proved the kidney to be functionally valueless and a constitutional menace, there is ultimately only one hope of recovery to the patient, and that is removal of the kidney, as in any incurable renal infection, provided the other kidney is sound; but such patients can be materially improved by drainage of the kidney by means of a retained catheter, leaving it in several days at a time, removing it for several hours, and reinserting, etc., in such manner relieving their absorption and toxemia, relieving the sound kidney of toxic nephritis, allowing many of them to get over a low grade uremia, and make them safe surgical risks, to be operated on at election rather than as an emergency.

Several cases have made a great impression with respect to the effect of drainage. The patients had very large retentions, marked pyelonephritis, accompanied by chills and high fever, and in very septic conditions, very dirty urines; after ureter catheter drainage and relief of their back pressure and absorption, they immediately ceased having their chills and fever, even though the urine was just as dirty as it had previously been.

When ureter catheter drainage is necessary over a lengthened period, we have found that usually the patients tolerate the catheter nicely, so that it has been perfectly easily borne for several days at a time, and the catheter in most instances has remained in place. We, as a rule, allow it to remain about three days, giving daily instillations of argyrol, 25 per cent., and silver nitrate, small amounts. It is then removed and allowed to remain out several hours and reinserted. This may be kept up for several weeks.

In Class 2 we watch very carefully from time to time the character of the urine and the amount of retention in the renal pelvis, and follow the patients' condition very closely. As previously mentioned, it is surprising how quickly the musculature regains its tone, and the pelvis completely empties itself if the retention is relieved, and how satisfactorily the patients improve.

Renal retention is an exceedingly common accompaniment of pregnancy, particularly in primiparas. This retention may be unilateral or bilateral, affecting the right side in about 85 per cent. of the cases if unilateral, as has been shown by Olshasen and Halberthsma. It is due to anatomic reasons which are well known to all, namely, that the uterus during pregnancy is obliquely placed in the abdominal cavity with the fundus inclined to the right and rotated around its long axis so that the left border looks to the left and forward, the right border to the right and backward, thereby bringing the right border in close contact with the posterior part of the pelvic brim. Obstruction is more common in the fifth and sixth months of pregnancy, because at this time the largest diameter of the uterus is occupying the superior strait and at this level the ureter is less protected by soft parts than anywhere else in its course. Thus we have a potent factor in the production of renal infection, and it is highly desirable that the cause of the retention predisposing to the infection should remain undisturbed. Therefore, with this marked frequency of right sided renal retention during pregnancy, I believe that infection of mild grades is much more common than is supposed; but these mild infections frequently may cause no symptoms except changes in the urine which are often regarded by the physician as representing cystitis or the albuminuria of pregnancy. Many of these patients, who have symptoms definitely referable to their kidneys and are recognized as having the classical pyelonephritis of pregnancy, get well by changes of position, flushings with water, administration of urinary antiseptics and careful bowel hygiene. Should they not promptly recover under this palliative treatment, they should not be allowed to drag on indefinitely, as many of them are, jeopardizing the life of the child and subjecting the kidney to grave damage by allowing this retention to continue.

I have seen a number of large infected right renal retentions complicating pregnancy. These women are quite sick and septic, running high irregular fevers, occasional chills, suffering with marked weakness and exhaustion, pain and tenderness in the side and vomiting. All of these have had large, tender kidneys, the urine cloudy with pus and all colon infections. They have been allowed to run for weeks on palliative measures in spite of their failure to respond. Two of the patients were extremely sick; two had gone so long with pain, suffering and fever as to be on the verge of abortion. One of these aborted; the other did not. It is for this class of cases that the ureter catheter in my mind has a most admirable field. It is done with practically no risk to the individual, the relief of the retention is immediate, the patients rapidly improve and fever drops; one patient was saved from aborting; others have gone to term from their seventh month and had perfectly normal deliveries and have improved marvelously in their condition during the latter months of pregnancy following such drainage. If the renal pelvis has not been too markedly distended, it will regain its tone and empty itself, and the urine become normal. One case had to be treated for three weeks before the condition was rectified, but the patient following this had a perfectly normal last two months of pregnancy.

These women with large infected renal retentions who are extremely sick and do not respond to palliative measures, in the majority of cases have been subjected to the induction of premature labor, if they did not abort spontaneously, with high mortality to the child, at least 40 per cent.; or they have been subjected to major renal surgery, such as nephrotomy, which was advocated by Davis before this Association in 1912, or by nephrectomy. One is impressed with the fact that so few of these persons have had a thorough trial with the ureter catheter, and I believe that even in the severe grades of infected retentions during pregnancy, if one is patient and uses a large retained ureteral catheter, most of these women will respond, provided the retention has not been too profound. Most of them will be able to go to full term, and have a perfectly normal labor.

Should such large retentions not be relieved in a short time, the patient's kidney is probably a third degree retention kidney, and will eventually have to be surgically attacked. Such kidneys are extraordinarily rare, but I believe that many of these kidneys may be kept under control by means of the ureter catheter until pregnancy has terminated.

Evidences of renal retention should not be palliated too long, but should be promptly drained by means of the catheter to prevent the pelvic musculature from being too greatly stretched, and the renal parenchyma from being disturbed. I am confident that if obstetricians would follow this plan, there would be far fewer damaged right kidneys, and more full term babies.

ABSTRACT OF DISCUSSION

Dr. Edwin Beer, New York: Years ago I was enthusiastic about ureter catheter irrigations of the pelvis and ureter in these cases, but during the last five years I do not believe I have washed a single pelvis, and the patients not so treated have done quite as well as those that I used to wash out. I would like to ask Dr. Caulk to give us some evidence of the fact that a pelvis which has been chronically stretched has resumed its normal shape; in other words, that it is no longer hydronephrotic and that its cubic content has been reduced. I have seen no evidence of that. It must be a very difficult proof to bring to convince the average man, because on filling the pelvis with colored fluid and testing its distensibility in the same case one day you may find the patient will take 20 c.c. and the next day only 5 c.c. The same thing may happen if you introduce thorium or argyrol. So that it seems to me, short of operation, one cannot find proof that after leaving in an indwelling catheter the nonacutely stretched pelvis resumes its normal shape.

Dr. William F. Braasch, Rochester, Minn.: I observed a case in a woman who had had a mechanical obstruction. A year later a pyelogram showed a normal pelvis; showing beyond question that following removal of the obstruction the pelvis will recede to practically normal size. A very large hydronephrosis, or one that is infected, will not do that. But most cases of that type, the type occurring during pregnancy, will do so. The large hydronephroses do not occur during pregnancy. That pregnancy is not the cause of the large hydronephroses is shown by the fact that only a small percentage of the patients we have operated on were pregnant. There is always some other factor present. There is no doubt whatever that introduction of a catheter in the pyelitis of pregnancy is the only way in which the condition can be relieved. It is quite remarkable how patients who have suffered for weeks with marked disturbance will improve by the mere passing of a catheter into the pelvis and draining.

Dr. A. J. Crowell, Charlotte, N. C.: From a rather large experience in irrigating the kidney pelvis with various preparations, among which is silver nitrate, it being the best, I am convinced that wonderful results can be obtained by this plan of procedure. A woman during her first pregnancy had an abortion on account of pyelitis. About the third or fourth month of the second pregnancy she began suffering with all the symptoms of pyelitis. The physician who had her in charge called me in consultation and on catheterizing the ureters secured quite a lot of pus from the right kidney, indicating a marked right pyelitis. The pelvis was irrigated with a 1 per cent. solution of silver nitrate and its strength gradually increased up to 5 per cent. She got along quite well as long as we kept up this treatment every third or fourth day. The urine cleared up almost completely and the patient felt so well she decided to abandon treatment.

Dr. Martin Krotoszyner, San Francisco: I wish to report a case of pronounced right sided pyuria and deterioration of renal function, in which the ureteral spurt appeared as a white puff. A collargol pyelogram showed a pronounced kink of the ureter, near the renal pelvis, and a moderate enlargement of the pelvis and of the berry-shaped and irregularly outlined calices. Marked improvement of the relative function of that kidney was noticeable soon after the pyelography, and when this procedure was repeated, the pyelogram showed a material straightening of the ureteral kink and a reduction in the size of the renal pelvis, while the shape and size of the calices had remained stationary, except for a slight reduction in the size of the median calix. A third pyelogram, made about two or three weeks later, showed a fairly normal renal pelvis and ureteropelvic anastomosis, the berry-shaped calices being the only pyelographic feature of pathologic note. Meanwhile renal function on the affected side had become equally as good as that of the other kidney, while the clinical symptoms had improved to such an extent that it was decided, for the time being, to refrain from operative interference.

Dr. H. L. Kretschmer, Chicago: The ureteral catheter has a definite field of usefulness in the treatment of pyelitis of pregnancy. Formerly, nearly all of these patients were treated by emptying the uterus. This method of procedure is still employed by many obstetricians, and I think it is a mistake. I have seen two very severe cases of pyelitis of pregnancy that were treated successfully by the ureteral catheter; one patient had a temperature of 104 F., chills, sweats and streptococci in the urine. She had been advised to have the uterus emptied. I inserted a catheter into each kidney pelvis, and injected silver nitrate into the pelvis; there was an immediate cessation of symptoms, and she went on to full term. The second patient had a residual urine of 30 c.c. in the right pelvis. Her temperature varied from 96 to 105 F. She was treated with the ureteral catheter. We attempted to leave the catheter in the pelvis for continuous drainage, but it was not well borne. The pelvis was drained of residual urine and irrigated with boric solution, and 20 to 25 c.c. of a 10 per cent. protargol solution were injected into the pelvis. She went on to a normal delivery. A recent report of her urine shows it to be free from pus but not free of organisms.

Dr. F. R. Charlton, Indianapolis: I wish to report the case of a woman who was delivered on May 9. One week later she went into an acute infection of some sort, with a temperature of 105 F. There had never been a history of any sort of urinary difficulty. As for a pyelitis running back to infancy, there was nothing to base such a statement on. She has had one remission since the middle of May with, practically a normal temperature. The first time I catheterized her ureters I found a compensatory flow from the right kidney and a complete disturbance of the left kidney. We injected argyrol, and ten days later, the flow from the left kidney was practically equal to the flow from the right. The left kidney took 25 c.c. of fluid without the slightest sign of distention. In the right kidney we used considerably less. There was a definite obstruction of some sort at about the point where the ureter crossed the brim of the pelvis. The chief point of interest was whether this was an injury caused during the progress of delivery. If that is so I am at a loss to explain the apparent advanced condition in both pelves. But, by reason of the passage of the catheter two or three times and the use of a very strong injection of argyrol, she has in every way been immensely improved. I have been puzzled by this picture chiefly on account of the enormous size of the left pelvis and the very apparent anomalous condition of the opposite side, wondering whether we could have stumbled into a polycystic kidney. There are, however, no palpable masses to be felt.

Dr. J. R. Caulk, St. Louis: I followed these patients with the ureteral catheter afterward for the amount of residual urine and also with pyelograms. The ones I have followed have had practically normal pelves. It is just a question of watching these patients and draining them. Even though you cannot cure all of them, I think you should give them a chance through catheter drainage, and not empty the uterus or do more drastic measures on the kidney during pregnancy. Certainly, the cases I have seen responded and did not need any such major surgery. I do not believe that lavage accomplishes what we are doing; I think it is just a question of emptying the renal contents. With regard to kinks, I do not know that it is a kink that is causing the trouble in pregnancy. We all know that the common time for obstruction is at the fifth to the seventh month, when the broadest part of the uterus is at the pelvic brim. Later on when the uterus changes its position and the pressure is more or less relieved, the musculature of the pelvis is allowed to contract and empty, rather than any relief of kinking in the ureter itself.

ETIOLOGY OF THE EPIDEMIC ACUTE RESPIRATORY INFECTIONS COMMONLY CALLED INFLUENZA *

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Epidemics of acute respiratory infections have occurred at irregular intervals for centuries in various parts of the world, and their prevention has been one of the most formidable problems in preventive medicine. These infections, different from other epidemic diseases, seem least liable to modification by hygienic or geographic conditions, and at some time in its history almost every race of people has suffered from their ravages. During these visitations, recorded in centuries of medical history, the general mortality is greatly increased; the etiologic agent, independent of its own virulence, may increase the death rate by combining with preexisting diseases, or by lowering the resisting power of the individual to such an extent that other more formidable infections gain a foothold and cannot be overcome. Furthermore, it is very striking that, notwithstanding the wide diversity of conditions under which these great epidemics have occurred, the clinical manifestations of the disease have always been the same. Usually the symptoms are those of an acute infection of the upper respiratory tract, but occasionally of the intestinal tract, with a rapid course and characterized especially by a very marked prostration of the patient. The complications are quite numerous, and probably represent the most important factor in determining the mortality of these diseases. Infections of the accessory nasal sinuses, lobar and lobular pneumonia, pleurisy, lymphadenitis and otitis media are common complications, while arthritis, pericarditis, abscesses, erysipelas, peritonitis, appendicitis, cholecystitis, illnesses diagnosed scarlet fever, and acute nephritis are frequently observed.

The pathologic anatomy of the disease is quite varied, and usually consists of the complicating morbid changes. Acute inflammation of the mucosa of the respiratory passages, varying grades and types of lobar and lobular pneumonia, generalized lymphadenopathy and infections of the various serous surfaces of the body may be mentioned as more or less typical of the pathologic anatomy of these infections.

Nothing can more forcibly indicate the definite character of the causative factor in these epidemic infections than this close similarity of symptoms and complications during several centuries and under such varying degrees of civilization. Whatever this factor may be, it must have a universal distribution and a most variable pathogenicity. Aside from a few observations on previous isolated epidemics, the most important bacteriologic work on these diseases was done during the great pandemic of 1889-1892. Notwithstanding the great number of observations during this time, however, no observer has satisfactorily proved that one species of bacteria is of primary importance in the causation of the disease. The larger group of investigators, including Weichselbaum, Newman, Ribbert, Finkler, Friedrich, Jaccoud, Gaucher, Bouchard and others found streptococci, pneumococci and staphylococci in the sputum and postmortem material from cases of influenza, and regarded the disease as a streptococcus or a mixed streptococcus and pneumococcus infection. In 1892, however, Pfeiffer published his great work on influenza in which he described a small gram-negative hemoglobinophilic bacillus as the causative factor, and this work gained almost universal acceptance at this time. The previously described bacteria — streptococci, pneumococci and staphylococci, because of their frequent presence in the sputum of normal persons, were henceforth considered as secondary invaders and of minor importance in the etiology of influenza. Pfeiffer isolated influenza bacilli from the sputum and bronchial tissues of persons suffering from the disease, but he was unable to find these organisms in the blood stream or satisfactorily to reproduce the disease in animals, although many attempts were made. Similar results were obtained by many of Pfeiffer's contemporaries. According to Pfeiffer, these gram-negative hemoglobinophilic bacilli cause true influenza, which he considered a local inflammation of the respiratory tract. Although these conclusions obtained wide acceptance for a time, except in France, recent investigators have failed to corroborate his findings, and the importance of this organism has been called into question. Davis and others have repeatedly found these bacilli in various diseases, such as whooping cough, tuberculosis and chronic bronchitis, in which there is a mucous expectoration, and many other diseases, and except in influenzal meningitis these observers consider the influenza bacillus of no primary importance. Again this organism has not been found with any regularity associated with the epidemics of acute respiratory infections since 1890. Whether or not Pfeiffer's bacillus was the causative factor in the great pandemic of 1890, there has been little evidence brought forward in recent years to support the view that it is of any great importance in the etiology of the disease.

During the winter of 1915-1916, the United States was visited by a severe epidemic of acute respiratory infections which resembled in every detail the great epidemic of 1890. This outbreak was apparently first noticed in the middle western states, and it spread rapidly over the entire country, taking a heavy toll of human life. December and January were the months in which these infections were most prevalent, and the epidemic had almost completely lost its impetus by March, 1916. During the height of this epidemic in Chicago, sixty-one cases of the disease were studied bacteriologically, and the results form the basis of this paper.

In all the cases the nasal discharge and sputum were examined, and in a few instances blood cultures were made. In forty-six instances, hemolytic streptococci were found in predominating numbers, and in six of these cases these organisms were isolated from the nose and throat in pure culture. Green-producing streptococci were found in thirty instances with one pure culture, and pneumococci in thirty cases with four pure cultures. Staphylococci were isolated in fifty cases, *Micrococcus catarrhalis* in six, and Freidländer's bacillus in one case. In only one instance was the influenza bacillus found, and then in small numbers. Anaerobic cultures were also made in the majority of cases, but there were no findings of any great interest. The *Bacillus rhinitis,* which has been described by Tunnicliff in connection with acute rhinitis, was found in the nasal discharge in two cases, and fusiform bacilli were not uncommonly observed in these anaerobic cultures.

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The majority of the patients were studied early in the course of the disease, and, in the earliest of these, hemolytic streptococci were almost constantly found, especially in the throat. These different strains of streptococci grew on standard blood agar plates as small round semitranslucent colonies of variable moisture surrounded by a clear zone of hemolysis from 2 to 3 mm. in diameter. They were gram-positive, arranged in pairs and short chains, medium sized and slightly oblong, and occasionally faintly staining capsules were visible. They were highly virulent for rabbits, doses of 1 c.c. of a twenty-four hour broth culture usually causing multiple arthritis and death in from five to ten days.

The pneumococci isolated were usually in small numbers, and often presented the characteristics of the organism found in the mouths of normal persons which Cole and his associates call Group 4 or the atypical type of pneumococci. The green-producing streptococci were also usually found in small numbers, and were in the instances studied relatively avirulent. In regard to the staphylococci found, it is interesting to note that many of the strains were hemolytic when first isolated.

In many instances the attacks of grip were followed by atypical pneumonias, and bacteriologic studies of material from these cases, both antemortem and postmortem, revealed the presence in predominating numbers of hemolytic streptococci in most instances. In no instance in which postmortem material was examined was the *Bacillus influenzae* found. In nine cases blood cultures were made, four of which were positive, three yielding hemolytic streptococci and one pneumococci in pure culture.

The most significant findings in this work were the hemolytic streptococcus, which, when present, was usually in predominating numbers, and the almost complete absence of the *B. influenzae,* although the disease simulated in every detail the so-called true influenza. The question of filtrable viruses cannot be excluded in such diseases, but in three early cases in which virus cultures were made no results were obtained. The results seem to indicate that the virulent hemolytic streptococcus must be considered as a very important factor in the etiology of these "grippal" diseases. Whether or not the infection is primarily a streptococcus infection cannot be determined; but, as the disease progresses, this organism rapidly becomes of paramount importance.

Throughout the literature on epidemic human respiratory infections there have been described coincident widespread epidemics of acute distempers among horses and occasionally other animals. These epidemics have been so frequently simultaneous that many of the earlier observers have described the clinical manifestations of the disease minutely. It is only necessary to say that the clinical picture, pathology and complications of the equine epidemic disease simulated very closely epidemic respiratory infections in man.

The clinical symptoms are always the same. The onset is sudden with a chill and high fever, or with a profuse mucous nasal discharge which rapidly becomes purulent, and profound exhaustion. In exceptional cases, gastro-intestinal symptoms have been noted as premonitary manifestations. The course is rapid, and usually terminates favorably unless serious complications intervene. The complications are, however, frequent, and determine the character of the prognosis. Pneumonia of a lobular type but in some instances lobar, pleuritis, empyema, abscesses, arthritis, acute nephritis and conjunctivitis are the most common complications. The pathologic picture simulates in every way that of human "grippal" infections, and it may be said that the two infections are quite similar in epidemiology, clinical manifestations, pathology and complications.

Such an epidemic occured among the horses of the United States during the winter of 1915-1916, and was at its height during the decline of the human epidemic, gradually abating with the advent of warmer weather. Great numbers of horses were attacked, and the disease spread rapidly along the various shipping routes to all the great concentration markets in the country. This epidemic was felt more severely in Chicago and New York, and in these cities thousands of horses suffered from the disease.

I had the opportunity to study this epidemic infection as it occurred in the Union Stock Yards veterinary hospitals in Chicago. Extensive bacteriologic observations were made on the nasal discharges and blood obtained during all stages of the disease, and on a large amount of fresh postmortem material. The technic used was similar to that used in the examination of material from human infections.

This work, which includes examinations of more than 100 horses sick or dead with the disease, yielded strikingly uniform results. Hemolytic streptococci have been isolated in pure or mixed culture from the nasal discharge before death, and from the infected tissues after death in almost all instances. In a large series of blood cultures taken at various stages in the course of the infection, hemolytic streptococci were found in pure culture in a large percentage of cases. Furthermore, these organisms have been isolated from pneumonic exudate obtained by lung puncture during life, infected joints, kidneys and urine in acute nephritis, abscesses, iritis exudate, acute painful swellings on the extremities of infected horses, a condition simulating erythema nodosum in man, and infected lymph nodes during the course of the disease. Other organisms, such as staphylococci, green-producing streptococci, gram-negative bacilli and *Bacillus subtilis,* were found occasionally in the cultures from the nasal discharges. It is also interesting to note that *Bacillus tetani* was found in these cultures in a few instances.

The results which have been briefly outlined indicate that the hemolytic streptococcus was a factor of primary importance in the etiology of this epidemic infection in horses; but before this conclusion can be considered logical, other possibilities must be excluded. The question of filtrable virus being responsible for the infection must be thought of. To obtain some information on this question, many culture and inoculation experiments have been carried out. The methods for the cultivation of viruses suggested by Noguchi and others were used, and Berkefeld filters were usually found of sufficient density to remove the bacteria. In twelve instances the mucous nasal discharges of horses in the first stage of the infection were suspended in sterile physiologic sodium chlorid solution and filtered through Berkefeld filters. This filtrate was cultured aerobically and anaerobically as well as sprayed into the nose of normal horses. In no instance did these culture or inoculation experiments yield any results which would indicate the presence of a filtrable virus. It is reasonable, therefore, to conclude that, using the known methods for identification of a virus, a virus is either not present in the nasal discharges of horses suffering from epidemic respiratory infections or it is not demonstrable.

Of three horses which were inoculated intranasally, however, with washed fresh cultures of hemolytic streptococci, one developed the typical acute infection three days after inoculation. This experimental infection ran an uncomplicated course and terminated in recovery in about fourteen days. The other two horses developed a slight mucous nasal discharge following inoculation, but the general reaction did not justify the conclusion that they were suffering from the disease. Up to this time immunity reactions have been studied in only a few instances, and the results have been inconclusive.

The streptococcus isolated from the equine respiratory infections corresponds with the organism described by Hel, Schütz, Pfeiler and others as the etiologic factor in pleuropneumonia in horses. The streptococci from human and equine sources, although similar in many characteristics, differ widely in pathogenicity, and seem to be highly parasitic for their specific hosts. The pathologic anatomy of the two epidemic respiratory diseases, human and equine, however, are quite analogous and typical of streptococcus infections.

When the observations just described are collated, some interesting relationships become evident. The epidemic of acute respiratory infections occurring in the United States during the winter of 1915-1916 simulated in every characteristic the great epidemic of 1890. In a detailed bacteriologic examination of material from sixty-one instances of this disease, the influenza bacillus was found in only one case. On the other hand, virulent hemolytic streptococci have been found in preponderating numbers in the noses and throats in these cases of influenza which suggest strongly that these streptococci play an important rôle in the etiology of these epidemic infections. The conclusion is certainly warranted that the influenza bacillus was of no primary importance in the causation of this epidemic of "grippal" diseases.

In regard to the epidemic of acute respiratory diseases in horses that occurred simultaneously with the human epidemic during the winter of 1915-1916, the accumulated evidence strongly suggests that the causative factor was also a hemolytic streptococcus. This streptococcus derived from equine sources, although similar in many cultural and morphologic characteristics to the streptococcus from human sources, differed from the latter in its biologic reactions, a fact which renders improbable a common etiology for the two infections. The pathogenic properties of each type of streptococcus for each specific host were quite similar. Furthermore, it is interesting to note that the conditions under which the two outbreaks of respiratory diseases occurred in man and in horses were quite analogous from the epidemiologic point of view. The activity of the horse market during the past year, the collection of large numbers of horses from the agricultural districts of the United States into concentration yards, and congested shipping facilities occasioned by the abnormal demand for horses created an artificial environment which simulated quite closely the crowded state of living among human beings — a factor apparently highly important in the transmission of these epidemic respiratory diseases. The disease prevalent at first only in the large concentration markets, rapidly spread along lines of transportation until horses in the more remote parts of the country were attacked.

This study of two diseases, apparently caused by two organisms of similar morphology and cultural characteristics, but differing in their pathogenicity for other hosts, occurring under similar epidemiologic conditions and characterized by identical pathologic lesions, emphasizes the importance of comparative pathology in the development of human medicine.

THE SURGICAL THERAPY OF BENIGN AND MALIGNANT TUMORS OF THE URINARY BLADDER *

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During recent years a renewed interest in the treatment of bladder tumors has been awakened, and with the introduction of the more extensive use of endovesical operative procedures as well as with the application of radium, new vistas have opened. With those procedures that are purely palliative this paper will not deal. Its limits, broad enough, will be the purely surgical therapy. Perhaps it is premature to attempt to standardize therapy in this field. By those of us who are fortunate enough to see many of these cases such an attempt should be made, even though further experience may lead to many modifications of the statements that seem justified today. Moreover, I hope that the discussion which this presentation will lead to will contribute a great deal to the elucidation of the subject before us.

From a therapeutic standpoint, cases of bladder neoplasm usually present themselves in three definite groups:

A. Benign papillomas, including single and multiple recurrences and papillomatoses.

B. Papillomas that cystoscopically simulate benign growths, that are microscopically malignant and respond but slowly, if at all, to the high frequency cauterization.

C. Papillary carcinomas and other types of malignant carcinomas and sarcomas which infiltrate the bladder wall.

My experience has demonstrated to me that all cases under Group A, except the papillomatoses, can be treated successfully by the endovesical high frequency method, unless: (1) the hemorrhage is too severe, or recurs at every introduction of the cystoscope; (2)

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the growth is inaccessible, or (3) the patient is intolerant. I have observed permanent cures by this therapy in these cases, including both the very large and the multiple papillomas, for a period of six years.

On the other hand, cases of papillomatosis, usually the result of very numerous implantations following a previous operation, are not as a rule fit subjects for endovesical therapy. Such therapy would be interminable, and in these cases, as well as in those three types of benign papillomas just enumerated as being unfit for the endovesical therapy, I believe an open operation should be performed.

In these cases, I believe, the bladder should be exposed through a wide suprapubic extraperitoneal incision in the Trendelenburg position. There should be the greatest gentleness exercised in all manipulations so as to avoid breaking off possible implants, and all exposed surfaces should be protected with gauze packings or thoroughly cauterized with heat. To insure oneself against implantations, the bladder should not be filled before operation, and it should be drawn out of the abdomen by its urachal end. This is readily done by gently pushing back the peritoneum to either side of the median line, when the urachal strand can be readily doubly clamped and cut between. By drawing forward on this band by means of the lower clamp, the peritoneum is gently stripped away from the bladder and the greater part of the organ brought forward to the surface of the body without undue traumatism of the tumor within the viscus. Several layers of gauze packings are now placed about the well exposed bladder, protecting the perivesical space and abdominal incision. Then the bladder is incised and the edges of the at first small incision are seized with forceps, which are used as retractors. If a papilloma is seen, it is immediately seared with the Paquelin cautery (hooked point) well into its base. Gradually the incision in the bladder is prolonged, each growth as it presents being seared in the same way. As little sponging as possible, and that as gentle as possible, is permissible. Through the gradually enlarged incision the whole interior is carefully surveyed, and every growth as well as every suspicious area is carefully paquelinized. At times such thoroughness may necessitate the use of the cautery for the greater part of an hour. In those cases in which there are very large tumors, these must be seized with blunt ring clamps and their pedicles seared, as it would take too long to burn them to a crisp in situ. Having assured oneself that there are no more growths to cauterize, the incision in the bladder is, in its turn, thoroughly cauterized, each clamp on the edge of the incision edge being removed so as to prevent any possible implant where the clamp has held the incision. Then to destroy any fragments that accidentally have broken off, the whole field is bathed for several minutes in alcohol. After this, fresh packings are placed around the bladder, and the incision in its anterior wall is closed in two layers, turning in the charred edges. Suprapubic tube drainage and closure of the superficial wound complete the operation.

Despite this long use of the cautery, there is no more postoperative discomfort than after ordinary suprapubic cystostomies, and except for a slightly more marked pallor of the mucous membrane, the cystoscopic picture several months, as well as a year or more later, gives no indication of what has been done.

When we come to Group B, papillomas which respond slowly and poorly to high frequency cauterization and which show microscopically changes suggestive of malignancy, though cystoscopically apparently benign, we approach a debated terrain. Some believe that these should be treated by endovesical methods, either the high frequency cauterization, with or without a snare, or first with radium as suggested by Young and then with the high frequency cauterization.[1] This position is taken because of the well recognized poor results of open operation. This teaching, if accepted, would lead to dire results, as malignant neoplasms would regularly be treated endovesically, and the proper time for an operative radical cure would have been lost. Others, realizing[2] fully that this type of growth may at times be cured by endovesical procedures, and realizing also that the malignant change may have progressed into the depths of the growth and that the extent of this progress cannot be determined by examination of superficial pieces of the neoplasms, favor the open operation. To the latter position I myself adhere. In 1912 I emphasized[2] that poor response to the Oudin current pointed to malignancy and indicated operation.

The only exception to this would occur under the following conditions. A patient is examined with the cystoscope, and a papilloma, apparently benign, is found. A piece of growth is immediately removed for microscopic examination and the growth is at once thoroughly cauterized with the Oudin current. If on reexamination within the week, which I do as a routine, the response to the cauterization has been such as I am used to seeing in typical benign papillomas, the growth having melted away, I naturally proceed with the high frequency current, even though the microscope reports marked cellular changes pointing to malignancy. During this brief respite further pieces are examined microscopically to determine my procedure. If such examinations show again similar atypical cells and other evidence of malignancy, if the response to the high frequency cauterization is also atypical, I believe it is safer to advise radical operation. Though there can be no doubt that such malignant changes in the superficial part of the growth may be destroyed by endovesical cauterization,[3] it is equally certain that we cannot tell how deeply those changes may extend in any particular case; and if they do extend into the depth, a cure by the high frequency current is out of the question. I believe, therefore, we must work out an operative technic that will allow us to deal successfully with these cases, and not shirk our duty and try methods that are doomed to failure from the very start, in a very definite proportion of our patients.

The operative treatment of these cases, I believe, will be identical with that of cases of outspoken and microscopically proved malignancy, that is, Group C. In these two groups of cases, B and C, the surgical procedures will vary with the site of the growth or growths, from a partial cautery cystectomy to a complete cystectomy. Just as in the technic described above for papillomatoses, etc., here, gentleness and care, avoidance of implants, extensive excisions with adjacent pelvic fat and lymphatics is absolutely essential to success.

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[1] Compare Geraghty: Surg., Gynec. and Obst., 1915, 21.

[2] Beer, Edwin: The Treatment of Papillary Tumors of the Urinary Bladder with the High Frequency Current (Oudin), The Journal A. M. A., Nov. 16, 1912, p. 1784.

[3] Beer, Edwin: Footnote 2; Removal of Neoplasms of the Urinary Bladder, The Journal A. M. A., May 28, 1910, p. 1768.

Before describing the technic in these cases, the first point that comes up for discussion is whether the suprapubic approach should be extraperitoneal or transperitoneal. The latter route I have found more dangerous than the former. The advantages incidental to being able to explore the peritoneal cavity for metastasis in distant organs have proved elusive. Despite such deposits, all things being equal, I believe we should go ahead and give local relief by resection. As the immediate mortality of extraperitoneal partial, as well as complete cystectomy, has been nil as compared with the transperitoneal operation, I have during recent years restricted the use of the transperitoneal route to tumors on the posterior wall of the bladder. Opening the peritoneum widely in these cases, one can readily detect involvement of the peritoneum overlying the tumor, and regularly remove the whole thickness of the bladder wall. If this technic is used, I believe it is safer to place a tube drain in the pouch of Douglas, provided the bladder is the seat of an infection, as so often is the case in malignant tumors. For tumors on the lateral walls, on the anterior wall, about the ureters, on the trigon and at the neck, the extraperitoneal approach, I believe, is preferable. If the peritoneum is opened during the manipulations incidental to liberating the bladder, palpation of the pelvis, especially of the pouch of Douglas, can readily be made, and then the opening should be sutured lest infectious material be spilled and the peritoneal cavity be infected. Many of those cases, as I see them, have already a diminished resistance, owing not only to their disease and the superadded cystitis, but also to the back pressure effect on the kidney or kidneys, as well as that which comes with advancing age. A superadded, even mild peritonitis may, under such circumstances, deprive the patient of an otherwise successful operative interference.

For tumors of the lateral walls, anterior walls and ureteral regions, I believe, therefore, that an extraperitoneal cautery excision is indicated, with or without extraperitoneal ureteral implantation. For tumors of the neck and trigon (as well as for numerous scattered malignant growths), provided the patient consents, I believe a complete cystectomy, cutting through the middle or upper third of the prostate which forms our pedicle, and taking along the pelvic fat and lymphatics, seminal vesicles, etc., with implantation of the ureters through two small lateral incisions in the skin of the iliac fossae, until we know how to implant them safely in the intestine, is the operative procedure indicated.

In doing the latter operation, the complete cystectomy, naturally the bladder must not be opened. It is stripped out of its bed, the vascular ligatures are applied as near the pelvic wall as possible, and all the fat is peeled toward the bladder, as in the radical Wertheim operation. The ureters are drawn out so as to project beyond the level of the skin, are intubated, and are attached to the skin by sutures.

In doing the partial cystectomy with the Paquelin cautery, the bladder is delivered, etc., without filling, as previously described under the operative treatment of papillomatosis cases. The growth is carefully exposed and its whole surface burned thoroughly. Then well away from the base of the growth, with Paquelin blade, a cautery excision is made. All incisions in the bladder are seared just as carefully as possible, and the whole area is bathed in alcohol for several minutes. If the ureteral meatus is sacrificed, a neostomy is readily made at some new point without undue traction, with a couple of chromic sutures which draw the ureter into the viscus and a couple that attach it at its extravesical entrance to the bladder. After changing the packings that fill the perivesical space, the bladder is closed in layers and suprapubic tube drainage is instituted.

CONCLUSION

My experience in considerably over 100 cases studied during the past six years has brought me to this standpoint:

1. In all cases of benign papilloma, primary or recurrent, whenever possible, employ endovesical therapy and preferably the high frequency cauterization.

2. In all cases of extensive benign recurrences, papillomatoses, as well as all benign cases unsuitable for endovesical therapy, employ the suprapubic extraperitoneal Paquelin cautery excision, technic as described above.

3. In all cases of microscopically suspicious malignant papillomas that look clinically benign and that do not respond promptly to endovesical high frequency cauterization, perform a Paquelin cautery partial cystectomy.

4. In all cases of microscopically proved malignant tumors, that look clinically malignant, proceed at once to Paquelin cautery partial cystectomy or to total cystectomy, depending on the site of the growth, employing the technic described above. If the growth is in the posterior wall, the transperitoneal approach is probably preferable. If the growth is in any other site, the extraperitoneal approach is preferable, as it is less dangerous and gives even better access to the lateral pelvic recesses.

5. Gentleness in manipulations, thorough and intensive use of cautery, drawing the bladder out of the abdomen before opening it, and protective packings in the perivesical wound, all aimed against the danger of implanting new growths on the raw surfaces, are destined, I believe, to make our efforts in this difficult field more uniformly successful.

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ABSTRACT OF DISCUSSION

Dr. Edward L. Keyes, Jr., New York: Dr. Beer is better qualified to speak on this subject than any of the rest of us, and when he places a very large category of these tumors out of the range of intravesical treatment, we may take his opinion seriously. I am skeptical in regard to the microscopic diagnosis. There are those who with the microscope will tell you what kind of a tumor can be treated intravesically and what kind requires excision for its cure. The real criterion is the one that Dr. Beer has laid down precisely, whether or not these patients get better promptly with the intravesical treatment. If they do not, you are wasting time. If you are going to do a suprapubic section for multiple papillomas, or papillary carcinoma, the various technics described may be classed as intraperitoneal or extraperitoneal, cautery or excision. I have seen Dr. Beer perform his operation and no operation appeals to me more than his does. I am inclined to believe that he is a little too fussy on the score of potential implantation. The searing of the bladder wounds, etc., is quite unnecessary if every step has been taken with the precision that Dr. Beer has achieved. I do not feel quite so keenly as Dr. Beer the difference between intraperitoneal and extraperitoneal operation. I have done a number of successful intraperitoneal operations and do not feel as he does that the mortality is so greatly in favor of extraperitoneal work. Finally, in reference to cystectomy, I must ask Dr. Beer how many cystectomies he has done successfully. I have done a lot of cystectomies unsuccessfully. My experience with total cystectomy has led me to the conclusion that the scar left by previous cystotomies makes removal of the bladder very much more difficult. The whole prostate should come out. I understood Dr. Beer to say he took out a part of it. I believe we should first free the prostate from the perineum, then attack the bladder alone. It was stated yesterday that to do an operation on the order of the Wertheim operation in these cases is perhaps ideal, but rarely possible of materialization on account of the age and infirmity of these patients. I think that is true. Dr. Coffey of Oregon has described a method of implanting the bile duct or the ureter obliquely through the intestine that seems ideal. I have done three such operations since the first of January, doing one ureter at a time, as suggested by Mayo. That gives the patient a kidney to live on while he is having trouble with the other one. You do not infect both kidneys at one time. I have had three perfectly satisfactory results—the patients have very slight tenderness, rise of temperature, etc. Therefore I feel high hope of good results from this method of ureter implantation in the bowel. Implantation in the skin is bad, unless the patient has a million dollars and several servants to go around with bath towels mopping him up.

Dr. William F. Braasch, Rochester, Minn.: I have seen some of the results following total cystectomy and implantation of the ureter into the intestines, as suggested by Dr. Charles Mayo, and he and Dr. Judd have performed over twenty such operations. The patients recovered from the operation in over fifteen cases, and we have had only two postoperative deaths in the series, but a number of patients have died in the months following the operation. However, a large proportion of the patients are living and well. I have in mind particularly one case, a young woman who came to me with a bladder exstrophy three or four years ago. She agreed to take the chance of the operation. Dr. Mayo first implanted one ureter and then the second into the sigmoid, and later on removed the bladder. Now there is just a small scar where the bladder was. She holds the urine in the rectum six hours. She is a nurse, does all the operating room work, and looks the picture of health. That is only one of several instances. The implantation of the ureter into the skin has been tried and discarded. If the danger of infection could be removed and we would have a functionating ureter, the bowel offers the ideal site for implantation, because the urine can be controlled by the bowel after a few months of irritation just as well as by the bladder. The danger of infection is important, but most of these patients, particularly with exstrophy of the bladder, have a long standing immunity to infection. If with the vaccine treatment that Drs. Crabtree and Cabot have suggested we can increase this immunity it would be an added feature of the operation. As far as the oblique implantation is concerned, it seems to be of distinct value. It surely is better than direct implantation.

Dr. John A. Hawkins, Pittsburgh: In times past this operation with the high frequency spark has been discredited by general surgeons. They are prone to open the bladder for any condition that may be found there. Therefore, I think it would be well for us to have them understand just what Dr. Beer would teach, and that is that this treatment applies only to cases of papillomas or nonmalignant tumors of the bladder. I have had quite a little experience with the high frequency spark, and with the results I have had I shall continue to use it as long as they respond to the treatment. We must impress on general surgeons that for a simple tumor of the bladder or a number of papillomas of the bladder the high frequency current is the operation of choice. There is no necessity for opening the bladder except when these tumors are very large.

Dr. John T. Geraghty, Baltimore: The selection of the best treatment for any tumor, of course, depends essentially on the diagnosis. I was very glad to hear Dr. Beer say that he did not depend on the microscopic diagnosis quite as much as he formerly did. We find from a very large experience in excising pieces of bladder tumors that it is impossible to tell, microscopically, an infiltrating carcinoma from a papilloma. We divide bladder tumors into benign, malignant, and papillary infiltrating carcinomas. The diagnosis we try to make principally from the cystoscopic examination and from palpation. We have practically given up excising pieces of the tumor, because we found that it was really impossible to differentiate. You will find cystoscopically in the average tumor, when it is malignant, that the papillae show necrosis. The least bit of necrosis indicates malignancy. Incrustations indicate malignancy. Again, around the border of the tumor you will frequently find an edema of the mucous membrane. That means malignancy. If, then, we are in doubt as to the nature of the tumor, we tentatively try fulguration. If the tumor is benign certain changes occur in it that indicate that it is disappearing. If, however, after fulguration the slough does not separate, it indicates that this is not a tumor for fulguration. In some cases the fulguration has cured the malignant papillomas. In some of these cases, in which the response to fulguration has been very slight, by first irradiating these tumors, we apparently changed the character of the tumor entirely. Tumors that had been there for several months slowly disappeared, so slowly that sometimes you felt doubtful that the tumor would respond to fulguration. After 400 or 500 milligram hours of radium we noted that the tumor seemed to change remarkably, and then one or two fulgurations would produce what weeks of fulguration had formerly failed to produce.

The use of radium in carcinomas has not been very satisfactory. Most of them have shown very little if any response, and so far, I think, we have only had one definitely infiltrating carcinoma that showed any very marked improvement. Two patients presented themselves on the same day with tumors in the same place, close to the vesical orifice, on the trigon, both infiltrating carcinomas. One was 60, the other 35. Irradiation was tried in both cases. The young man seemed to be stimulated by the radium. The tumor grew very much faster than you would ordinarily expect. In the other case the tumor apparently has disappeared. Cystoscopic examination a few weeks ago showed the bladder apparently normal. That is, however, the only case in which the radium apparently has had any effect on the extensive infiltrating carcinomas. We feel that when a diagnosis of carcinoma of the bladder is made, if the tumor is on the anterior wall it should be resected; if it is on the lateral wall it should be resected; if on the posterior wall, and of such a size that it can be done, it should be resected. We have done no cystectomies in recent years. It is possible, with the technic of handling the ureters better developed, that in the future we will do it in cases of papillary carcinoma in which no other method of relief is available.

Dr. F. R. Charlton, Indianapolis: I doubt very much if doctors are physicists enough to actually know the chemical differences possessed by these different heat currents, the d'Arsonval, Oudin, diathermy, etc. My own feeling has been that it is a question of burning and that it does not make one bit of difference whether that burning is done with a hot iron, with a platinum tip, or some finely differentiated electrical current. Dr. Beer seems to place his dependence largely on the old-fashioned Paquelin cautery.

Dr. Edward L. Keyes, Jr., New York: Even radium, while scientifically different from the cautery, destroys tissue to a rather indefinite depth. Dr. Barringer has access to a very large store of radium and has made a tumor disappear by one application of radium. He has made another tumor disappear, which was a small pathologically proved infiltrating carcinoma of the trigon, about the size of your thumb nail. It had been burned frequently and in vain by intravesical methods elsewhere. Dr. Barringer gave a single burning, and three months later we cystoscoped and found no tumor in the bladder. It was a typical ulcerating type of carcinoma.

Dr. Louis E. Schmidt, Chicago: I have had not less than five cases of recurrences. I call it papillomatosis of the bladder, or implantation. I will cite one case. A year ago a patient presented himself with the history that he had been suprapubically operated on a year and a half previously for the removal of a benign papilloma. He evidently had a very stormy convalescence, requiring almost a year. On cystoscopy he had altogether too many tumors to count, certainly somewhere between seventy-five and 100. This patient was treated successfully in the course of four sittings, and I have had him under observation now for the last six months, and he is still entirely free. As Dr. Beer says, if it is possible to do that they certainly fall in the domain of intravesical treatment. I was fortunate enough in this instance to be able to reach every tumor. There is no question in my mind that if these patients return they are far better off, even if the periods are few and long between, and that this method of treatment is far superior to opening up the bladders repeatedly. I should like to mention the method which Dr. Kolischer and I have used in the last year and a half, that is, the diathermic method, which is probably nothing but electric coagulation or high frequency on a big scale. It requires a high frequency current and two electrodes. This method of treatment is used only for tumors where no resection of the bladder is permissible or where the question of cystectomy is out of the question. That is, it is reserved chiefly for tumors of the neck and base of the bladder. The bladder is opened and these electrodes (of different sizes and different shapes) are applied directly to the tumor. A thermocoagulation and a certain amount of destruction of tissue is obtained in that way. The heat is given off between the two electrodes, and does not radiate in all directions, particularly in directions in which you do not want it to radiate, as with the thermocautery. This slough is usually thrown off in due course of time, and then the patient is treated with radium. Dr. Kolischer has one case that he considers as a cure. I myself have treated not less than six in this manner, and the results have apparently been better than with the treatment of simply opening the bladder and using the thermocautery for the destruction of a growth which has been considered inoperable. I saw Dr. Keyes operate in one of the cases he mentioned and I was very much impressed with the ease and accuracy with which the Coffey implantation can be carried out. I think it is the best procedure brought forward for this condition.

Dr. G. Kolischer, Chicago: I am satisfied that the surgery as practiced heretofore in tumors of the bladder is not satisfactory. In the very few instances where we have to deal with benign tumors we may succeed. Success is permanent success, and that in malignant tumors is very infrequent. For instance, men who have had a very large experience have practically abandoned operation for malignant tumors of the bladder. The primary mortality compared with the results which at best are only temporary is out of proportion to what we may accomplish. A combination of chemotherapy and radiotherapy offers encouraging results and does not endanger the patient's life. Our results are very much better, so far as we can judge now, than with any other method, so far as temporary cure is concerned. We have treated patients who were absolutely inoperable. It would be foolish to claim that they are entirely cured, because the time is too short, but at the present time they are well, as far as any one can determine. No man of large experience claims any definite cure in all his cases. In fact, there is only one case on record where a total cystectomy kept a patient alive fifteen years. In most of the malignant tumors of the bladder technically a radical operation is impossible. Ninety per cent. are sessile in the base of the bladder. Consequently there is no such thing as a radical operation. Fulguration is an excellent means of treating papillomas, providing they are benign. There is no surgical interference known that leads to definite results, but we have today by a combination of diathermy, chemotherapy and radiotherapy a means which has given encouraging results.

Dr. Frederick C. Herrick, Cleveland: I would like to ask Dr. Beer one question. How many benign papillomas of the first group which he has fulgurated have had no recurrence? We are struggling to get carcinoma early, and in a person of 40 we are always afraid we will find a recurrence in what we thought was a benign tumor.

Dr. Edwin Beer, New York: The first point I would take up is the question of the attempt to standardize the treatment of tumors of the bladder. The general surgeon still is very skeptical as to what can be done by the transvesical route. Although we may change our viewpoint as we have more experience, I believe we are now in a position to define fairly exactly what should be done in certain types of tumors of the bladder. Operation is not the only treatment. As to Dr. Kolischer's remarks, I consider them very reactionary. The same argument can be applied to the treatment of carcinoma in any organ of the body. If we take Dr. Kolischer's viewpoint nobody with cancer of the bladder will have a chance at permanent cure, and that people with cancer of the bladder have been cured for a number of years cannot be denied. I do not know how long they must be free before considered cured. Dr. Kolischer suggests fifteen years of freedom. I have recently shown a series of six cases, representative of the different types of growth in the bladder, some of which went back four, five and six years, and remained well after a partial cystectomy. I also showed a case of total cystectomy that had been done more than a year before, and the patient, although unfortunately not a millionaire, was fairly comfortable. Whether endovesical cauterization is purely an application of intense heat or not is as yet an unanswered question. I think there is a very big difference between the d'Arsonval and the Oudin current. I prefer the Oudin. *A priori*, theoretically one would say the d'Arsonval current would be better, but as a matter of practice I have come to the conclusion that the Oudin current is to be preferred.

Dr. Geraghty touched on one very important point. He suggested incorrectly that I had changed my viewpoint as to the value of microscopic data. I made one exception in Group 2. I stated that if a tumor looks benign, if the microscope shows it to contain atypical epithelial cells suggestive of carcinoma, if the tumor melts away under high frequency on the very first treatment, I would hesitate to do a resection, though the microscopic section showed atypical cells. The reason is self-evident: If a piece is cut off of the tumor, a piece of one of the fronds of a papilloma, and that happens to show carcinoma microscopically, it is perfectly conceivable that that carcinoma may be limited to a small area, and if the whole tumor melts away at the first treatment, so that at the second examination instead of finding a tumor such as we saw originally, we find a small residue, I believe one is fairly safe, though not absolutely safe, in considering that a satisfactory response, and one is justified in continuing the treatment, even though the microscopic examination may have suggested a carcinoma. Unfortunately we have not any satisfactory way of implanting the ureters in the bowel so as to prevent infection. I have only come to my viewpoint regarding total cystectomy during the last two and a quarter years, and during that time I have done only two such cases. When cases come that are suitable for a cystectomy, naturally I have to lay the matter before the patient, and at least three patients who were suitable have refused. Any number who were unsuitable have gone on and died of their carcinomas. We all know how these patients suffer after cystostomy or bilateral nephrostomy. Although the operation of cystectomy is an extensive one, luckily my patients have survived it. I think the mortality is going to be much smaller than it has been in the past. If I were concerned personally I would select it.

Coal Mine Fatalities in 1916.—Reports from state mine inspectors received by the U. S. Bureau of Mines show that there was a decrease of about 3 per cent. in coal mine fatalities in the United States in 1916 as compared with 1915, while the increase in the production of coal amounted to about 12 per cent. The fatalities were 2,225 in 1916 as compared with 2,269 in 1915. Without having the figures as to the number of men employed, but on the basis of the number employed in 1915, the fatality rate was 3.03 in 1916 as against 3.09 in 1915 for each 1,000 men. This is said to be the lowest rate since 1898, when about half the number of men were employed. According to the calculations of the Geological Survey the coal production for each fatality in 1916 was the greatest in the history of coal mining in the United States. In 1916 there were eleven mine disasters in each of which five or more men were killed, the total number of killed being 154, which is the lowest since 1901. In 1915 the number was 262, in 1914, 316, and in 1913, 464.

TRICHINAE IN PORK AND NEMATODES IN BUTTERFISH

IN THEIR RELATION TO THE IMPLIED WARRANTY IN THE SALE OF ARTICLES OF FOOD[*]

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Several instances of the sale of trichinous pork and of nematode-infested butterfish have recently been brought to the attention of the division of zoology of the Hygienic Laboratory. As these cases bring up the question of the "implied warranty" connected with the sale of articles of food for consumption by human beings, it seems advisable to discuss them from the standpoints of medical zoology and public health.

Certain laws provide that "diseased" meat and meat from "diseased animals" may not be sold, and in the last analysis the interpretation of these laws is based on the interpretation of the term "diseased."

At least one judge has recently held that the term "diseased" in respect to the food laws should be interpreted in its popular sense. If, however, this view is admitted, it will be found that from the standpoint of the parasitic infections this interpretation would exclude all meats from sale, for probably no animal that has ever been slaughtered for food has been entirely free from infection by one parasite or another. Thus a very high percentage of hogs and sheep is known to be infected in the muscles (namely, the "meat," in narrower sense) with certain parasites belonging to the protozoan group named *Sarcosporidia*. Academically, these animals are diseased, but should they be so classified in the sense of the food laws? No case of disease in man has ever been traced to these (sarcosporidian) parasites when swallowed in pork or mutton, yet every person who has eaten pork, mutton or lamb a number of times has certainly swallowed many of the protozoa in question.

Again, every animal used for food has in its intestine either protozoa, roundworms, flukes or tapeworms. Some of these parasites, especially certain protozoa, are mere scavengers in the intestinal tract, but many of the infections undoubtedly do more or less harm to their hosts. Accordingly, academically these animals are "diseased," but are they "diseased" in the sense of the food laws?

If all animals harboring animal parasites are to be construed as "diseased," in the sense of the food laws, as they are undoubtedly "diseased" from the abstract academic point of view, it is clear from the zoologic point of view that no meat can be sold legally; hence it would appear logical to the zoologist to conclude that the term "diseased" in the sense of the food laws should be construed in a manner different from its academic interpretation and that, in the sense of food laws, "diseased meat" and "meat from diseased animals" really mean *meat that is likely to produce disease when eaten by human beings.*

Thus, pork, beef or mutton from animals containing *Sarcosporidia* in their muscles or strongyli in their stomachs would not, from this point of view, be meat from "diseased animals," in the sense of meat inspection regulations and food law, despite the fact that this meat is from "diseased animals," from the academic, clinical or pathologic point of view as applied to the animals themselves, unless the infection were so extensive as to produce in the meat an edematous or other condition sufficiently extensive to render the meat disgusting or otherwise unfit for food. But in the latter case the meat should be condemned, not because of the presence of the parasites but because of the secondary conditions due to unusually extensive infection by the parasites. Any other conclusion would mean that the law forbids the sale of all meat; but since the law permits the sale of meat, and since the law cannot be assumed to permit the sale of meat which it specifically excludes from sale, it would seem logical to conclude that it is the intent of the law to forbid the sale only of such meat as is likely to cause disease in man, regardless either of the academic or of the popular interpretation of the term "diseased" as applied to the animal itself.

Accordingly, from the zoological point of view, the term "diseased" in meat inspection and food laws is technically quite distinct from the term "diseased" in clinical work and in its ordinary sense.

On basis of the view that "diseased meat" in the sense of the food laws should be interpreted as meaning "meat that is likely to produce disease when eaten by human beings," the question arises as to the bearing of this interpretation on the "implied warranty" on the part of the vendor, that meat he sells comes under this construction. Here, again, the subject has a distinct zoological bearing.

If a vendor sells a bushel of live clams or live oysters in the shell, the sale, and therefore the implied warranty, is made on the assumption that the clams and oysters will be taken out of the shell before being eaten. Despite the fact that the clams and oysters have been sold in bulk, the vendor sold these goods in good faith that they would be *properly prepared for food before* they were consumed, and his implied warranty certainly cannot be assumed to cover injury to a person who might swallow the clams and oysters, shells and all, any more than it could be assumed to cover the point that the purchaser of this food allowed the clams to remain exposed to the sun for several days, to die and decay, before they were eaten.

Likewise, the vendor of live lobsters, crabs, snails, chickens, fish, or of flour, rice, salt, red pepper, milk, corn, green apples, green bananas, nuts of all kinds, potatoes, lettuce, berries, pineapples, coconuts, peas in pod, string beans, etc., presupposes in his implied warranty that the purchaser who buys these foods is under an implied guaranty that they will be *properly handled and properly prepared for reception into the stomach,* before they are served as food. Any other assumption would make the vendor responsible for all omissions and commissions (over which he has no legal control) with respect to the food articles after they had left his ownership and possession.

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[*] An outbreak of disease, diagnosed as trichinosis, occurred as a result of eating pork. Suits for damages were brought against the vendor. At the trial of the first case, physicians testified to the effect that the trichinae could have been discovered by proper inspection, and the case was decided against the vendor.

In the trial of the second case, I was requested to appear as expert witness. The surgeon-general consented to my appearing on the condition that no fee would be accepted. I testified that no inspection could guarantee the absence of trichinae, therefore that raw pork is not a proper article of food, and that the implied warranty involved in the sale of food was predicated on an implied guaranty that the food would be properly prepared for reception into the human stomach; if the food was not properly prepared, the vendor could not be held responsible for results dependent on lack of proper preparation. The trial judge ruled out part of my testimony because of the existence of a certain ruling of a higher court. This case was decided against the vendor. Several other cases came to trial before other trial judges, the testimony was repeated, and these cases were decided in favor of the vendor.

The line of argument I followed created some interest among several judges and attorneys who have discussed it with me, and it is on their suggestion that I bring these views to the readers of THE JOURNAL.

The implied warranty in the sale of food is therefore correlated with and dependent on an implied guaranty in the purchase of food.

Accepting this last point as axiomatic and fundamental, let us apply the principle to trichinous pork.

When a meat dealer sells pork, he is selling a product which *in its raw state* is dangerous to health, for the reason that it frequently contains certain disease germs (trichinae) the absence of which cannot be guaranteed by any practical and proper method of meat inspection known. *If the pork is properly cooked* or otherwise properly prepared, these germs are killed, are harmless, and do not per se render the pork "diseased" (as food), for if dead they cannot produce disease.

As the absence of live trichinae in fresh pork cannot be scientifically or practically guaranteed by any known practical and proper method of inspection, and as the presence of live trichinae in raw pork is liable to produce disease if eaten by human beings, the conclusion follows either that *raw* pork is not a proper article of food or that the law calls on the butcher to guarantee something that from the very nature of things is not subject to guaranty on basis of any available knowledge; in other words, that the law demands that the butcher must, in principle, *wager a bet* that the pork does not contain live trichinae. A bet is not a collectable debt at law, and financial reimbursement involved in an implied warranty that is nothing more or less than a bet would seem, logically, to have the same legal status as a bet!

To the zoologist the only proper conclusion is that pork which is not properly prepared for food comes under the same general principles as oysters or clams in the shell, undrawn fowls, live lobsters, uncooked rice, flour, etc., namely, that unless the pork is properly prepared to become food fit for consumption, it is not fit for food at all, and that when a vendor sells raw pork with the implied warranty that it is fit for food, this implied warranty is premised on an implied guaranty by the purchaser that he will prepare it properly to serve as food.

From this point of view, if a person contracts trichinosis, the vendor of the fresh pork is not in any way responsible, because had the pork been properly prepared to serve as food, trichinosis could not have resulted; and if the meat was properly prepared for food, the diagnosis of trichinosis was incorrect.

The case involving the condemnation of butterfish is slightly different from that of trichinous pork.

In August, 1915, the wholesale price of these fish was reported as 7 cents a pound, on a day when the inspectors in one of our cities discovered that certain lots contained small worms. The fish were condemned, and the next day the wholesale price is reported to have fallen to 1 cent a pound. The economic loss resulting to an important industry is estimated to have amounted to many thousands of dollars. The dealers appealed to the United States Fish Commission, and the commissioner requested "an expression of opinion from the Public Health Service as to the nature of these parasites and the probability of their communication to human beings through the eating of butterfish."

The report from the zoologist to the service may be summarized as follows:

1. The parasitic worms from the butterfish submitted for examination and opinion represent a larval (agamic) ascarid.

2. It does not agree with any parasite that is recognized as cause of disease in man.

3. There is no evidence that it would come to maturity in man, even if the ascarid reached the human stomach in uninjured condition and viable.

4. Most of said parasites seem to occur on the viscera of the fish, and since the viscera are removed before the fish is cooked, the number of ascarids that might eventually reach the human stomach is enormously reduced.

5. Since the butterfish are cooked before being served as food, those agamic ascarids that happen to be present in the flesh or under the parietal peritoneum would be cooked before being swallowed; hence they would not be infectious.

6. This office has no evidence that any case of disease in man has ever been caused by these small parasites.

7. The worms in question belong to a group, some members of which form a toxic substance that produces symptoms.

8. Clinical evidence is lacking in support of the theoretical possibility that these worms might, through such a toxic substance, produce harm if cooked and eaten by persons.

9. From the esthetic standpoint, opinion might differ as to the advisability of permitting fish, with these worms in their flesh, to be placed on the market.

10. My own view is that if numerous worms were found in the flesh of the fish, the purchaser himself would discard it; if only a few were present in the flesh, there is no evidence that these would do harm if cooked and eaten with the fish; accordingly, it appears safe to leave the matter in the hands of the public.

This conclusion is based on the premises that neither the raw flesh nor the entrails of butterfish are eaten in this country; in any locality in which these premises do not hold, the conclusion might, on local study, have to be modified.

11. My recommendation is that the bureau take the position (*a*) that the presence of parasitic worms in or on the viscera of food fishes that are eaten cleaned (eviscerated) and cooked does not render these fishes unfit for food; (*b*) that there is no evidence that agamic ascarids in the flesh or under the parietal peritoneum of fish are infectious to man; (*c*) that we have as yet no evidence that said agamic ascarids are toxic to man; (*d*) that at most, so far as present evidence goes, the presence of said agamic ascarids in the flesh or under the parietal peritoneum is an esthetic question, and (*e*) that if said agamic ascarids are present in the flesh or under the parietal peritoneum in sufficiently large numbers to greatly depreciate the food value of the fish or to render the fish disgusting or repellent as an article of food, the condemnation if made at all should be made clearly and distinctly on this ground and not because of possible communicability of said parasites to man; (*f*) that the bureau advise conservatism in this matter, as the point involves:

The possibility of reducing the home supply of an important article of food, used by many people;

The possibility of an extension of the condemnations to many other species of food fishes;

The possibility of a serious blow to a very important industry (fishing), in which large sums of money are invested and on which many families rely for their livelihood;

The possibility therefore of an actual lessening of our national food supply, with reactionary increase of food prices in other lines;

The possibility of unjustly developing toward fish in general, as an article of food, a prejudice from which it may take years to recover;

and all of these dangers are of a nature that they should not be lightly incurred on basis of theoretical possibilities which, so far as present knowledge goes, are not supported by any tangible practical clinical experience. In fact, the ultimate public health injury resulting from a possible restriction of the food supply might easily outweigh the occasional injury done to a few individuals in case these persons happened to develop some toxic symptoms as the result of swallowing too great a number of these parasites.

Here again is a case dependent on the interpretation of the word "diseased" in the sense of the food laws. As food, the fish should not be considered "diseased" since the presence of these innocent little threadlike worms encysted chiefly on the entrails would not render the fish liable to produce disease in man; but from the standpoint of the fish themselves, pathologic changes exist, and hence disease is undoubtedly present.

THE CYSTOSCOPIC DIAGNOSIS OF CONTRACTED BLADDER*

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TYPES AND UNDERLYING CAUSES

The abnormally small, or contracted bladder (*Schrumpfblase* of the Germans) may occur on the basis of a variety of etiologic factors. The congenital origin of the condition is extremely rare, and only the acquired forms deserve consideration for practical purposes.

In certain forms of neuroses (neurasthenia and hysteria) contraction of the bladder may occur as the result of continuous tonic spasm of its muscular coat. The main symptoms of this condition consist in distressing pollakiuria and strangury, gradually leading to almost continuous tenesmus, and eventually resulting in marked loss of bladder capacity. Classical descriptions of this "functional intolerance of the bladder" are recorded in the French literature by Guyon,[1] Guiard[2] and Janet.[3]

Extravesical inflammatory processes, terminating in definite pericystitic and paracystitic connective tissue involvement, as frequently encountered in the female pelvis, may occasionally lead to contracted bladder. I have had the opportunity to examine such bladders, in which loss of capacity did not seem to be due as much to disease and contraction of the bladder wall as to distortion of the viscus by pericystitic adhesions.

Neoplasms, pressing on the bladder from the outside, and large concrements or tumors inside the viscus, may be the cause of considerable reduction of bladder capacity. Many years ago I observed a man of 35 with a huge sarcoma of the bladder and complete loss of capacity, rendering cystoscopy impracticable.

Particularly cancer of the prostate, involving the bladder wall, is liable to result in rapid reduction or total loss of capacity. I recall the case of prostatic cancer in a man of 71, with most distressing tenesmus and constant dribbling, in which the bladder, on account of its extreme smallness, could be found only with great difficulty at suprapubic exposure.

Contracted bladder, due to stone, is particularly frequent in children, as stated by Kausch.[4] I have seen two such cases in boys under 7 years. In one of them loss of bladder capacity was apparently due to the presence of a large stone and the resulting severe cystitis, while in the other case, concerning a boy of 5, a comparatively small and rough oxalate, situated at the outlet of the bladder and embedded in its wall, proved to be the cause of constant dribbling connected with most distressing and continuous tenesmus, and resulting in almost complete loss of capacity by bladder contraction.

By far the most frequent cause of contracted bladder is chronic cystitis which, in its final stage, may present two main forms of the condition. Reduction of the caliber of the bladder cavity may be due to concentric hypertrophy of its muscular coat, connected with marked trabeculosis. Such bladders, if viewed from the outside, appear to be of fairly normal size, while the abnormal thickness of their wall is, in reality, responsible for the small capacity. Cases of that character, presenting an abnormal irritability of the muscular apparatus of the bladder, not based on tangible central lesions, are recorded in the French literature, and particularly Guyon[5] gives, under the heading "Cystite douloureuse," a masterly description of its symptomatology; he, as well as Hartmann,[6] have published photographs of excellent specimens of the condition.

Through the courtesy of Dr. Henry Meyer of San Francisco I had the opportunity to observe a typical case of that character, in a patient of his: A man of 58 for thirty years past, had suffered from gradually increasing urinary disturbances, as the only cause of which a pronounced phosphaturia could be ascertained. Bladder capacity was about 40 c.c. Cystoscopy under general anesthesia, on account of rapid expulsion of the injected fluid, was barren of diagnostic significance. On account of the intensity of the symptoms, uncontrollable by expectant measures (bladder dilatation), suprapubic cystostomy was performed, at which the bladder wall was found to be considerably thickened and trabeculated. The patient's untoward urinary symptoms were almost instantaneously relieved by establishment of suprapubic drainage, which, on account of the return of distressing symptoms, following attempts to remove the drain, was made permanent, and by which the patient has been kept comfortable and entirely dry for more than eight years past.

While this form of contracted bladder, though, is comparatively rarely encountered in the literature and in practice, the second form, that due to interstitial chronic cystitis, comprises the greatest majority of cases and, therefore, is of the utmost practical importance. Pathologically this condition is characterized by an extension of the process from the mucosa of the bladder wall to its muscular coat, replacing it by connective or scar tissue and, by these means, materially reducing, or totally destroying elasticity of the bladder wall.

On the degree and extension of the pathologic process involving the bladder wall depends the intensity of symptoms. In the most pronounced cases which come under observation, bladder capacity may be reduced to less than 10 c.c. Constant dribbling occurs in all cases up to a capacity of 30 c.c. and above, and incontinence practically ceases only at or above a capacity of 50 c.c., when bladder evacuation will occur spasmodically and be attended with postmictural dribbling. Pain in or around the bladder, which may be either constant or assume the character of intermittent paroxysms, may vary in intensity according to the secretory activity of the primary infecting focus, and recurring periods of exacerbation and remission of inflammatory bladder symptoms may develop by the occurrence of new or secondary infecting foci.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Guyon: Leçons cliniques sur les maladies des voies urinaries, Paris, 1897.

[2] Gulard, M.: Ann. d. mal. d. org. génito-urin., 1891, p. 230.

[3] Janet: Ann. d. mal. d. org. génito-urin., 1895, p. 132.

[4] Kausch: Arch. f. klin. Chir., 1907, **23**, 78.

[5] Guyon: Ann. d. mal. d. org. génito-urin., 1887, p. 72.

[6] Hartmann: Des cystites douloureuses, Thèse de Paris, 1887, Obs. IV.

CLINICAL SYMPTOMS

The clinical diagnosis of the abnormally small bladder is easily established on the basis of its characteristic complex of symptoms, and by determining reduction of bladder capacity by means of the catheter. Recognition, though, of its existence, does not, in the great majority of instances, pave the way to rational treatment of this most distressing condition, which renders the sufferer unfit for work and social intercourse, and sooner or later terminates his life by ascending renal infection. Successful treatment, insuring relief or cure, practically depends on the correct localization and removal of the underlying cause. Viewed from this standpoint the diagnosis assumes the aspect of one of the most difficult and complicated medical problems.

Cystoscopy, for obvious reasons, would be the most appropriate and exact diagnostic method, if its application were always feasible. Cystoscopic investigation of the bladder, in order to be of diagnostic significance, requires, according to good authority (Nitze, Kümmell, Luys and others) a bladder capacity of at least 50 c.c., which in a large number of cases is not available. Although, by the use of the American close vision cystoscope, it is possible to make an examination with less than 50 c.c. of distending fluid,[7] many authors still consider cystoscopy impracticable and contraindicated in cases below that capacity. The question, therefore, arises, to what extent the underlying etiologic factors of contracted bladder are diagnosticable without cystoscopic investigation.

The diagnosis of contracted bladder due to stone is comparatively easy, which in most instances is feasible on the basis of roentgenography or by means of the stone searcher. By eliciting an unusual irregularity or roughness of the bladder wall, with metal sound or catheter, the diagnosis of concentric hypertrophy may, occasionally, be facilitated. Bladder contraction, due to pericystitic inflammatory processes, can, as a rule, be correctly interpreted by anamnesic data and clinical investigation. Equally amenable to correct diagnosis are cases of contracted bladder occurring on the basis of long standing prostatic, urethral or fistulous affections. The diagnosis of bladder contraction, complicated by one or more diverticula, is, in the presence of a large diverticular sac, occasionally feasible on the basis of shadow-casting roentgenography alone. I have seen an interesting case of that type:

A man of 74 with long standing distressing cystitic symptoms, a small prostate, as revealed by rectal palpation, and a bladder capacity of about an ounce, showed after thorium radiography, on the plate, a large sac, which communicated with the bladder by a small opening, at the center of its anterior wall. The capacity of the diverticular sac by far exceeded that of the bladder.

The availability, though, of such prima facie evidence, without the aid of cystoscopy, is the exception, and the differential diagnosis of diverticulum, prostatic involvement, and renal infection may, even in the hands of the experienced observer, present most appalling difficulties, as in the following case:

A man of 57 entered the hospital with symptoms of severe cystitis and marked urosepsis. Prostate by rectum was considerably enlarged. There was almost constant dribbling of purulent urine. Bladder capacity was about 40 c.c., with 15 c.c. of residual urine, presenting the appearance of pure pus. After long and painstaking treatment of the bladder, it was possible to effect momentary cystoscopic inspection, revealing fairly normal outlines of the sphincter. Attempts, though, to view the trigon and fundus were constantly frustrated by instantaneous clouding of the bladder fluid, as usually observed in severe pyuria of renal origin. When, after many futile attempts, bilateral ureteral catheterization was finally performed, clear urine was obtained from both kidneys, thus proving the vesical character of the persistent pyuria, as the actual source of which the cystoscope, finally, demonstrated a diverticulum at the bladder fundus.

CYSTOSCOPIC MANAGEMENT

While, though, the etiologic diagnosis of some forms of contracted bladder may occasionally be feasible without cystoscopic evidence, the differential diagnosis of idiopathic or inflammatory bladder contraction (*cystite douloureuse*), the abnormally small congenital bladder, and the classical tuberculous scar tissue bladder (*tuberculöse Schrumpfblase*) is a most difficult task, which, without the aid of the cystoscope, in most instances is impossible of performance. This is the more regrettable, since the tuberculous form by far exceeds in frequency all other types of bladder contraction. Guyon[8] found, among twenty-one specimens of contracted bladder, ten to be of tuberculous character. Kelly[9] considers a large percentage, probably 80 or 90 per cent., of cases of intractable or rebellious cystitis, characterized by loss of bladder capacity, to be associated with tuberculosis of the upper urinary tract. I myself have seen more cases of tuberculous bladder contraction than of all other types combined. The extravesical origin of long standing cystitis was pointed out, long before the advent of the cystoscope, by Thompson,[10] Ultzmann,[11] Coulson[12] and others, who declared cystitis to be, but very rarely, an idiopathic condition, while the probable renal origin of chronic bladder affections is mentioned in the writings of precystoscopic authors like Guyon[13] and Lebert.[14] Exact methods for the recognition of renal tuberculosis, at a very early stage, have been well established for many years past. Moreover, statistical investigations compiled by Rovsing,[15] Simon,[16] von Oppel[17] and others have proved that a large percentage of cases of renal tuberculosis, at least 50 per cent., are complicated by tuberculosis of the bladder, which only very rarely is encountered as the result of genital tuberculosis, and which, in all probability, never occurs as a primary condition. Viewed under this angle, many cases of so-called genuine or idiopathic bladder contraction, recorded by writers of the precystoscopic and earlier cystoscopic eras, like those of Rothschild[18] and Raskay,[19] would at present be recognized as tuberculous scar tissue bladders, while reported cures must be interpreted on the basis of autonephrectomy. In spite of these universally accepted facts, Guyon's[20] words, written about twenty-five years ago, descriptive of the distressing symptoms of patients afflicted with bladder tuberculosis, "these miserable sufferers, who so often are the object of diagnostic errors," have not lost their pungent significance with the present generation of practitioners. For cases of neglected cystitis, characterized by tenesmus, hematuria, pain and loss of bladder capacity, and therefore not *a priori* suggestive as being of renal origin, are even today, in many quarters, interpreted as primary affections and, unfortunately, become the object of cystoscopic investigation at a late stage, in which that procedure is impracticable.

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[7] Pilcher, Paul M.: Practical Cystoscopy, 1915, p. 110.

[8] Guyon Leçons çliniques sur les *maladies* des voies urinaries, Ed. 3, *1896.*

[9] Kelly: New York State Jour. Med., April, 1906.

[10] Thompson: Clinical Lectures of Diseases of the Urinary Organs, London, *1879*, p. 294.

[11] Ultzmann: Die Krankheiten der Harnblase, Deutsch. Chir., **52**, *108.*

[12] Coulson: Diseases of the Bladder, *1891*, p. *163.*

[13] Guyon: Footnote 8, p. 455.

[14] Lebert: Cyclopedia of the Practice of Medicine, Diseases of the Bladder, p. 688.

[15] Rovsing: Arch. f. klin. Chir., 1905, **77**, 43.

[16] Simon: Beitr. z. *klin.* Chir., 1901, **30**, 1.

[17] Von Oppel: Folia urol., 1907, p. 494.

[18] Rothschild: Deutsch. med. Wchnschr., 1901, **27**, 84.

[19] Raskay: *Deutsch. med.* Wchnschr., **27**, 298.

[20] Guyon: Footnote 8, p. 389.

In a man of 40, who was confined at a climatic sanatorium for pulmonary tuberculosis, and who had suffered for some time past from the classical syndrome of urinary tuberculosis, cystoscopy was found to be impracticable on account of persistent bladder intolerance toward attempts at water distention. Before the intention to remove the patient to a hospital equipped with modern cystoscopic facilities could be carried out, he died, rather suddenly, under uremic symptoms.

A man of 39 entered the hospital with grave symptoms of urosepsis, superinduced by long standing and severe cystitic symptoms. The history pointed to left-sided renal involvement. After a few attempts at cystoscopic diagnosis, rendered futile in the extremely small and intolerant bladder, exposure of the left kidney revealed an inert pus sac (autonephrectomy), while the right organ showed, on the postmortem table, the typical picture of parenchymatous tuberculous nephritis. The guinea-pig inoculation test gave, later on, a positive result.[21]

A man of 41 was brought to the hospital in a state of deep uremic coma. Cystoscopy was impracticable on account of bladder intolerance. Roentgenography showed two apparently typical concrement shadows in the left kidney region. This organ, on exposure, was found to be considerably enlarged, containing a pus cavity at its upper pole, while in the center of the organ two small cavities, filled with cheesy material, were present. The right kidney was found, at the postmortem examination, to be small, presenting the typical picture of tuberculous atrophy. The bladder was extremely small, showing marked scar tissue infiltration (interstitial cystitis[22]).

Fortunately, though, the chronicity of the condition permits, in the great majority of cases of tuberculous bladder contraction, of a longer period of observation and preparatory treatment, rendering feasible, under favorable circumstances, the exact focal diagnosis, which is indispensable to rational operative treatment.

Ocular inspection of the bladder, by means of the cystoscope is, in advanced cases of contraction, barren of diagnostic information. As a rule the cystoscopist encounters an intensely sensitive and inflamed bladder wall of a deep red angry color, on which all cystoscopic landmarks are more or less obliterated by irregular and ragged ulcerated areas with uneven edges, covered with necrotic shreds and purulent material. Ureteral meatoscopy, moreover, the most important object of cystoscopic investigation, is, as a rule, obviated in these extreme cases. Quite frequently the walls of the vesical portion of the ureter have become thickened and the sphincter has lost its contracting power,[23] or the characteristic ureteral spurt is, by stricture of the canal, changed into cystoscopically insignificant dribbling. Judging, furthermore, on the color and appearance of the secretion of either kidney, whether it be clear or turbid, is very difficult and often misleading. For, unlike in earlier forms of unilateral pyonephrosis; we are not dealing with a sharply circumscribed process, clearly localized about a ureteral orifice and pointing to infection of the corresponding kidney, but with much larger and more diffuse areas of inflammatory tumefaction and elevation, covering the whole trigon and fundus, and thus obliterating these cystoscopic landmarks by edematous and ulcerated tissues.[24]

The diagnosis, therefore, is but rarely aided materially by cystoscopic observation alone. In the majority of these extreme cases of bladder contraction, infection of both kidneys exists, and the only hope for the patient lies in the probability of ascertaining satisfactory function of one organ, which, after removal of its anatomically and functionally valueless mate, would be likely to recover from toxic nephritis. Reliable data on this most vital question can be obtained only by examination of separated renal urines, as available by catheterization of both ureters.

CYSTOSCOPIC MANAGEMENT

Cystoscopic investigation, therefore, must be conducted, from the start, with ureteral catheterization as its main object. Any other means, devised to obtain indications for life-saving nephrectomy, like bilateral exposure and palpation of both kidneys, as recommended by von Illyès[25] or application of functional tests on one kidney, after temporary clamping of the ureter of its exposed sister organ, as proposed by Casper,[26] ought to be *a priori* rejected as risky and crude diagnostic makeshifts. In fact, as the most potent source of enthusiasm for continuous and persistent efforts, or as the best protection against discouragement and disappointment, in the face of repeated cystoscopic failures, in these desperate and seemingly intractable cases, must be considered the cystoscopist's firm conviction that nothing short of bilateral ureteral catheterization will insure a successful issue of the case. Only in this way cooperation of the patient can be obtained, who, as a rule, consults the urologist, totally demoralized by long suffering. Not radical, therefore, and hasty cystoscopic measures, intended to force the diagnostic issue by one or two sittings, but painstaking work, characterized by perseverance, gentleness and infinite patience, may, by means of a large number of cystoscopic sittings, sometimes extending over several weeks, finally yield palpable diagnostic results. Successful cystoscopic management, besides that, is feasible only on the basis of modern urologic hospital facilities, including assistants and nurses specially trained for that work.

Most essential is tactful and efficient preparatory treatment of the bladder, which should not be conducted by means of the irrigator. Forceful bladder filling is to be shunned, as liable to excite detrusor spasm, resulting in simultaneous expulsion of catheter and injected fluid. "The more sensitive the bladder, the less fluid must be injected, if manipulations in the viscus are to be done with care," and "the bladder does not wish to be put on tension, but is ready to retain a certain amount of fluid only, which comes in mere contact with its wall." These golden rules, set down by Guyon,[27] should always guide the operator in his work. A good hand syringe will permit of measuring the proper amount of pressure to be exerted, and help to communicate to the operator's hand the onset of spasmodic detrusor contraction, which, by intermittent release of pressure, may readily subside. By cautiously adding minute amounts of fluid, thus imitating, as it were, physiologic bladder filling from above, distensibility of the bladder may be gradually increased, according to the character of the underlying cause of loss of capacity. Bladder contraction, due to nervous cystalgia, or to inflammatory changes of the mucosa, on the basis of nontuberculous renal lesions, will yield more readily to tactful efforts at distention, to which the tuberculous scar tissue bladder, on account of loss of elasticity of its wall, generally proves refractory.

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[21] Compare Am. Jour. Med. Sc., 1906, **131**, 217.

[22] Compare Krotoszyner, Martin: Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography, The Journal A. M. A., Dec. 5, 1914, p. 2006.

[23] Pilcher, Paul M.: Practical Cystoscopy, 1915, p. 375.

[24] Rumpel: Cystoscopy as Adjuvant to Surgery, 1910, p. 59.

[25] Von Illyès: Folia urol., 1912, **6**, 477.

[26] Casper: Deutsch. med. Wchnschr., 1908, **34**, 1337.

[27] Guyon: Footnote 8, p. 407.

Extensive experience with these cases has convinced me that general narcosis for cystoscopic purposes is to be shunned as dangerous, and disappointing in diagnostic results. A tuberculous bladder wall will often not relax under ordinary general narcosis, and in order to obtain disappearance of bladder reflexes, such a profound degree of anesthesia is required that the patient's life would be endangered.[28] Attempts to increase bladder capacity under spinal anesthesia (0.06 tropacocain) are liable to result in more or less serious lacerations of the shrunken and ulcerated bladder wall, and hemorrhages of such intensity may occur that cystoscopic vision is obviated. But spinal anesthesia, because rendering cystoscopic examination entirely painless, is often indispensable, especially for initial sittings in very nervous patients. Under the guidance of the resourceful operator, however, even moral cowards become gradually used to cautious and delicate cystoscopic manipulations, so that, for later sittings, a previously administered codein—or morphin—suppository, or the usual local cocainization of the deep urethra will suffice. The anesthetizing effect of locally applied remedies is extremely limited in these severe bladder affections, and wherever possible, I try to carry on cystoscopic investigation without any anesthesia, which, for obvious reasons, is especially desirable in cases in which many sittings are likely to be required. Particularly for the beginning, I prefer brief cystoscopic sittings, at intervals, determined by the patient's local and general reaction to instrumentation. Everything in this connection depends on establishing the patient's confidence in the operator's skill and instrumental delicacy. In this way, the duration of sittings can be materially extended later on, without great discomfort to the patient, while cystoscopy may then be repeated at shorter intervals, without the occurrence of consecutive reactions.

Air cystoscopy I have entirely abandoned. Air inflation of the bladder, aside from being very painful, renders cystoscopic vision indistinct, on account of glaring light reflexes. Some authors, particularly Stoeckel, recommend that method as facilitating cystoscopy in severe hemorrhagic conditions. I agree, however, with Bransford Lewis,[29] that irrigation through one of the modern close vision cystoscopes is practically always sufficient to cope with that difficulty.

Bladder distensibility and capacity having been ascertained, the bladder wall is mechanically cleansed of adherent shreds of mucus and pus by small quantities of fluid, injected with the hand syringe. For initial cystoscopic sittings, merely aiming at quick orientation in the bladder, I prefer Nitze's evacuation cystoscope with inverted optic, which permits of meatoscopy from a bird's eye view, as it were, and, by this means, often facilitates localization of one or both ureteral orifices. Repeated change of fluid is accomplished by filling through the shaft of the cystoscope with the aid of two assistants, while the penis, in order to prevent expulsion of the injected fluid, is firmly compressed by the operator around the shaft during the act of actual cystoscopy. If every manipulation connected with the examination is done rapidly and skillfully, a more or less conclusive conception of the intravesical condition, including the most important features of the trigon, will be available in bladders capable of some degree of distention.

The various types of the Nitze cystoscope are entirely unsatisfactory in bladders below 40 c.c., in which meatoscopy is often found to be still feasible by means of the American close vision cystoscope. I am using for this work, almost exclusively, the Brown-Buerger double catheterizing cystoscope, the irrigating device of which allows of rapid change of the bladder fluid without disturbing the patient, by removing the optic, while the brilliant light of the instrument produces a large and clear picture of the ureteral orifice and its neighboring tissues. By keeping up almost continuous irrigation, it is often possible to bring into cystoscopic view the ureteral region in an even extremely contracted bladder, so that momentary glimpses of the meatus, sufficiently long for its catheterization, can be obtained. After catheterization of one ureter, identification and entrance of its mate is, occasionally, much more easily accomplished. In most instances, though, the finding of the other meatus, because of its abnormal position, owing to contraction and distortion from ulcerations, is fraught with difficulties which, at first, appear insurmountable, and may require many sittings, spent in laborious and systematic search of every groove and slit suggestive of the meatus. In rarer instances, catheterization of an orifice, located high up on the wall or roof, or hidden in a mass of ulcerated tissue, is feasible only by blindly searching in all ulcerated areas with the end of the catheter until, by chance, the meatus is entered.[30]

Of material aid in this work is chromocystoscopy (injection of 10 c.c. of 4 per cent. indigocarmin), if performed after previously determining the time of acmé of color elimination. Since the majority of these desperate cases are characterized by involvement of both kidneys and material deterioration of renal function, meatoscopy should not be started until the generally delayed climax of appearance of blue coloring has set in.

Stricture of the ureter, unless located so low down in the tube as to obviate collection of urine of its corresponding kidney, is, as a rule, not a serious obstacle to the diagnosis, even though the obstruction remains impassable. Total obliteration of the canal, where the ureteral tube is shrunken to a blind cord, as the result of autonephrectomy, may entirely obviate the cystoscopic diagnosis, as in one of my own observations, reported elsewhere.[22] These cases, however, are rare and void of practical interest, since they generally are beyond repair.

Time and space forbid the enumeration of many more details, the neglect or omission of which, insignificant and unimportant as they may seem, nevertheless may frustrate success, while their harmonious combination, at the hands of the experienced and resourceful cystoscopist, will eventually pave the way to the correct diagnosis, as in the following observation, selected from my case records:

A man of 35 entered the hospital on account of severe "bladder trouble," which for a long time past had proved refractory to local treatment. Past history was unimportant, except that the patient had suffered from pain in the left kidney region at the onset of bladder symptoms. Physical examination was negative; the kidneys were not palpable. The patient complained of very painful and frequent (almost continuous) micturition with postmictural dribbling. The urine was cloudy, containing pus and blood microscopically and numerous acid-fast bacilli. The two hours' bladder phenolsulphonephthalein was .55 per cent.; blood cryoscopy, 0.546; blood urea, 192; bladder capacity, about 1 ounce. Momentary cystoscopic glimpses of the bladder wall revealed the picture of severe tuberculous cystitis; the landmarks of the trigon could not be made out on account of rapid clouding of the fluid. Dilatation treatment was inefficacious on account of extreme sensitiveness of the bladder, from which the injected fluid was almost instantly expelled. Under spinal anesthesia it was possible to catheterize the right ureter to a point about 8 cm. above the meatus, where it met an impassable obstruction. Right-sided renal secretion showed abundant microscopic pus and blood, many tubercle bacilli, and gave, later on, a positive guinea-pig test. The left ureter could not be localized in two further sittings under spinal anesthesia, at which also chromocystoscopy was applied.

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[28] Guiteras, Ramon: Urology, 2, 100.

[29] Lewis, Bransford: Cystoscopy and Urethroscopy, p. 29.

[30] Thomas: G. L.: Collected Papers of the Mayo Clinic, 1911, p. 401.

From then on, short cystoscopic sittings, without any anesthesia, were held at regular intervals, about every fourth day. Determination of the acme of indigocarmin elimination revealed onset at about forty, and climax of blue coloring at about 90 minutes after injection. Finally, after many futile attempts to locate the left ureter, a blue spurt was seen to emanate from a point behind a fold of the mucosa, at the extreme upper end of the left side of the fundus. The beak of the cystoscope was pushed into that niche where the catheter found its way blindly into the ureter, and was easily moved forward to the pelvis.

Examination of renal urines demonstrated marked anatomic and functional deterioration of the right side, while the kidney secretion of the left side was almost clear, showing microscopically a few epithelial cells, no tubercle bacilli and no other bacteria. The guinea-pig test, later on, proved positive.

The right kidney, after its removal, presented the macroscopic and microscopic picture of caseous destruction, due to chronic tuberculosis. The nephrectomy wound was completely closed about three weeks after the operation.

The patient left the hospital locally and generally improved, while his bladder capacity had increased to about 100 c c.

Prior to exact cystoscopic diagnosis, exposure of the left kidney, which was suspected to be anatomically and functionally destroyed, had been contemplated. Exposure and eventual removal of the other kidney might not have been undertaken at the same sitting, as too risky a procedure in the patient, exhausted by long suffering. Bilateral ureteral catheterization, on the other hand, at once clinched the diagnosis and rendered right-sided nephrectomy a safe and rational procedure.

CONCLUSIONS

1. The congenital and so-called idiopathic contracted bladder is rare and practically unimportant.
2. Bladder contraction, in the majority of instances, is due to extravesical causes (pyonephrosis, etc.).
3. Of the utmost practical importance is the tuberculous scar tissue bladder, secondary to renal tuberculosis.
4. The clinical diagnosis of contracted bladder is comparatively easy, while recognition of its underlying causes is very difficult and, as a rule, feasible only on the basis of comparative examination of renal urines, obtained by bilateral ureteral catheterization.
5. Successful cystoscopic exploitation of contracted bladders below 50 c.c. capacity is almost always feasible, provided sufficient time, modern urologic equipment, cystoscopic experience and skill, and cooperation of the patient are available.

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VALUE OF SPINAL PUNCTURE IN ETIOLOGIC DIAGNOSIS OF CARDIOVASCULAR DISEASES *

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The examination of spinal fluid in cardiovascular diseases was suggested to me by the finding of a positive spinal fluid Wassermann test in a man, aged 54, who had an aortic aneurysm, a bilateral optic neuritis and unequal pupils, and a negative blood Wassermann test. The spinal fluid showed also positive Nonne and Noguchi tests and a high cell count, consisting mainly of lymphocytes. These evidences of meningeal irritation or inflammation, as they undoubtedly are, were first described by Ravaut, and are now accepted without controversy. Yet no attempt has been made heretofore to arrive at an etiologic diagnosis of cardiovascular diseases by resorting to an examination of the spinal fluid in cases in which the blood Wassermann test has been found negative.

As Cabot[1] has shown, the etiologic factors in the production of these diseases may be grouped under four headings: (1) nephritis; (2) toxic conditions, such as gout and diabetes; (3) infectious diseases of the rheumatic type, as well as other infectious diseases, and (4) syphilis. In this classification, Groups 3 and 4 are contributory causes in the majority of the cases of cardiovascular disease. While more than one etiologic factor may play a part in the production of the morbid condition, still, a careful inquiry into the history, and a complete physical and laboratory examination will help considerably in determining the dominant cause. At this juncture it must not be forgotten that a patient, who can trace his cardiac affection to one of the other groups, may subsequently acquire syphilis and therefore present the above mentioned evidences of meningeal irritation. These instances are not of sufficient frequency, however, to interfere materially with the results here set forth.

The series of cases here reported consists of twenty-two out of about 200 found within the last year in the service of Dr. Williamson and myself at the Cook County Hospital, Chicago. Puncture was not done in cases of the endocarditic group, when the patient's condition was too serious to allow the procedure, or when a positive blood Wassermann test was obtained. In all, thirty patients were subjected to spinal puncture, of whom twenty-two showed positive evidences of syphilis. Among these twenty-two patients, five had aortic aneurysm; one, abdominal aneurysm; four, aortic regurgitation; nine, myocarditis in various stages of decompensation; two, hypertension, and one, angina pectoris. Only four of the entire series admitted syphilitic infection. A positive spinal fluid Wassermann test was obtained in seventeen cases. These included four of aortic aneurysm; the one of abdominal aneurysm; three of aortic regurgitation; eight of myocarditis, and the one case of angina pectoris.

The five cases yielding a negative Wassermann test were distributed as follows: one case of aortic regurgitation; one aortic aneurysm with a spinal fluid under high pressure and positive Nonne and Noguchi tests; one of myocarditis, with a negative Nonne test and a cell count of 36; two of hypertension, both with a

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* Read at the meeting of the Society of Internal Medicine, Oct. 23, 1916.

[1] Cabot, R. C.: The Four Common Types of Heart Disease, The Journal A. M. A., Oct. 24, 1914, p. 1461.

positive Nonne and Noguchi test, and a fluid under high pressure. One of these patients was a man of 34, with a systolic pressure of 260 and a diastolic of 140, who subsequently developed a hemiplegia and died.

An examination of the spinal fluid in the seventeen cases yielding a positive Wassermann test showed a positive Nonne test in the case of abdominal aneurysm; a high cell count in one case of aortic aneurysm; a positive Nonne test and normal cell count in another, and a positive Nonne test and cell count of 30 in still another. In one case of aortic regurgitation with a + + + + Wassermann test there was a cell count of only 1.

The fact that in this series there were no cases of double mitral lesion — a condition generally of endocarditic origin — may be of interest. Whether this is simply a coincidence, or whether these cases are all of syphilitic origin, which might seem to be the fact, can be determined only by the study of a larger number of cases than that covered by this report.

There can be no question of the presence of syphilis in those cases which yield a positive Wassermann test; but there may be in the case of those which are negative. Ravaut,[2] in 1903, showed that in the early stages of secondary syphilis a high percentage of involvement of the nervous system obtained. Altman and Dryfoos[3] reported 61 per cent., and Wile and Stokes[4] 63 per cent. involvement. The presence of syphilis is indicated by lymphocytosis, increased albumin and globulin, a positive Wassermann test and an increase in spinal fluid pressure. A pressure of 200 mm. or over is considered pathologic. I did not include in this series those cases which, in addition to high pressure, did not show some of the other evidences of spinal involvement mentioned above.

A lymphocytosis in the spinal fluid beyond the normal limits (Nonne,[5] 10 cells per cubic centimeter, Gutmann,[6] 5 cells per cubic centimeter, von Kafka,[7] 5 cells per cubic centimeter) is considered the most constant finding in connection with symptoms referable to the central nervous system. Bayley[8] quotes Mott as saying that lymphocytes in the spinal fluid are important evidence of syphilis of the central nervous system. He also states that there may be a distinct lymphocytosis without the power of complement fixing. When these points are borne in mind and errors in technic are eliminated, it seems almost certain that the results of the spinal fluid examinations are conclusive. As there were no other signs of tuberculous meningitis, and especially in view of the fact that several of the patients left the hospital improved, tuberculosis cannot be considered as a factor in the production of these changes.

Although there is no way of computing by the aid of these statistics the actual percentage of increase of cases of cardiovascular diseases determined in this way as due to syphilis over the percentage of such cases commonly known, the fact still remains that the etiologic factor under such conditions can be determined in a greater number of instances by resorting to spinal puncture. This applies particularly to those cardiac conditions which are now known to be of syphilitic origin in a large percentage of cases. These include aortic diseases and to a lesser extent myocarditis.

Where the etiologic diagnosis has been made, the treatment becomes simplified. Longcope[9] has shown that cases of long standing will not be benefited to any pronounced degree by salvarsan treatment, but that amelioration of symptoms, of temporary duration at least, may be obtained. In acute cases, however, Brooks and Carroll[10] have shown that heart involvement in early syphilis, irrespective of the lesion, may be cured by specific measures, independent of circulatory measures. My own experience has not been very satisfactory, although at times I thought that temporary benefit was obtained by specific treatment in cases of long standing.

SUMMARY

1. Positive Wassermann tests have been obtained in the spinal fluid in seventeen out of thirty selected cases in which the blood Wassermann test was negative.

2. In five of those cases in which the spinal fluid Wassermann test was negative, either lymphocytosis or a positive Nonne or Noguchi test has been found.

3. Spinal fluid examination, as a result of these findings, would seem to be of value in cardiovascular diseases, when syphilis is suspected and the blood Wassermann test is negative.

25 East Washington Street.

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[2] Ravaut: Ann. de dermat. et de syph., 1903, Series 4, No. 2.

[3] Altman and Dryfoos; quoted by Wile and Stokes (Footnote 4).

[4] Wile and Stokes: Jour. Cutan. Dis., 1914, **22**, 607. Dermat. Wchnschr., Sept. 12, 19[illegible].

[5] Nonne: Syphilis of the Nervous System, translated by Ball.

[6] Gutman: Dermat. Wchschr., 1914, **58**, 705.

[7] Von Kafka: Die Cerebrospinalflussigkeit, Ztschr. f. d. ges. Neurol. u. Psychol., 8, 415.

[8] Bayley: Pathology of Syphilis and Parasyphilis.

[9] Longcope, W. T.: Syphilitic Aortitis: Its Diagnosis and Treatment, Arch. Int. Med., January, 1913, p. 15.

[10] Brooks, Harlow, and Carroll, John: The Treatment of Heart Involvement in Syphilis, The Journal A. M. A., Oct. 24, 1914, p. 1456.

ANILIN POISONING*

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As comparatively few cases of anilin poisoning have been described, the symptoms, treatment and outcome of the following case should prove of interest, particularly since the dye industry has of late tremendously increased.

Anilin poisoning occurs in one of three ways: (1) by the swallowing of anilin with suicidal intent; (2) by inhalation of anilin fumes, or (3) by absorption of anilin through the skin from the clothes. The symptoms of anilin poisoning are similar to those of nitrobenzene.

REPORT OF CASE

History.—White man, aged 20, single, laborer, admitted July 22, 1916, Hospital No. 38491, had been working for one week in an anilin dye factory. In carrying out his work, he inhaled anilin fumes. He felt weak, especially in the lower extremities, and had severe headache. He tried to walk but was unable, lost consciousness, and was brought to the hospital.

Physical Examination.—The respiration was slow and superficial. The head and scalp showed no signs of injury. The pupils were equal, regular in outline, dilated, and reacted to light and accommodation. The conjunctivae were dark blue. The nose was negative. The ears were bluish. The mouth, lips and gums were dark blue. The tongue was clear, but decidedly bluish. The throat was congested. The teeth were in poor condition. The neck showed no rigidity, and no glands were palpable. The finger nails were blue. The chest was well formed; expansion was fair and equal; pulmonary breathing was normal. Heart examination revealed the apex in the fifth interspace, 3½ inches from the midsternal line. The right border was at the right sternal edge. The left corresponded to the apex beat. The sounds were of poor muscular quality, and were irregular in rhythm. There was a systolic murmur at the apex which was transmitted toward the axilla. The second pulmonary sound was accentuated. The pulse was irregular and of poor tension. There was no sclerosis. The abdomen was distended. The liver and spleen were not palpable. There was no tenderness or masses. The extremities were negative. The reflexes were normal. There was a severe acne over the chest and back. A pustular acneform rash existed on the anterior aspect of the chest and forehead (anilin rash?). The patient developed restlessness and pulmonary edema, which subsided under venesection.

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* From Dr. Merzbach's Service at the Brooklyn Jewish Hospital.

Treatment and Course.—The patient was admitted to the ward at 11:30 a. m., July 22, 1916. The heart was hyperactive and the pulses were of poor tension. A phlebotomy was done, and 14 ounces of very dark blood were removed. The patient had projectile vomiting consisting of food previously ingested. He voided involuntarily and expelled dark fluid by rectum. He had some facial twitchings. After the venesection, his color slowly improved. The systolic blood pressure was reduced to 100, diastolic, 80. A hypodermoclysis of 1,000 c.c. of sterile water was given. The condition slowly improved.

July 23, the patient felt much improved. The color was good. He felt comfortable.

July 25, the systolic blood pressure was 110, diastolic, 80.

The temperature on admission was 98.6, rose to 100 in six hours, and then dropped to normal the next day and stayed there.

The pulse on admission was 110; it dropped to 72 the next day, and ranged after that between 72 and 92.

The respiration on admission was 30, dropped to 22 the next day, and then ranged between 18 and 24.

The patient voided 97 ounces in the first twelve hours and over 86 ounces each of the two following days. We have no reason to believe that this increase in urine output was due to any diuretic effect of the poison, but believe that the diuresis can be well explained by the large quantities of fluid given to the patient.

LABORATORY EXAMINATIONS

Urine	7/23/16	7/25/16	Blood	7/22/16
Specific gravity	1.015	1.025	Red blood cells	4,900,000
Reaction	acid	acid		
Albumin	0	0	Hemoglobin	over 100
Sugar	0	0		
Microscopic	Neg.	Neg.		

The treatment consisted in venesection, Murphy drip, oxygen inhalation, forced fluids, cold pack, the administration of rhubarb and soda, and hypodermoclysis. The patient having recovered completely, he was discharged from the hospital, July 26, 1916.

COMMENT

When inhaled in small quantities for a long period, anilin fumes give rise to symptoms of chronic poisoning, and one must always bear this in mind among dye workers, when there is no other explanation for the symptoms. In such cases the sweat may be red or violet. From 10 to 25 gm. is the fatal dose of anilin.

Dr. Merzbach informs me that in a nearby dye factory a provocative test has been practiced on all applicants for employment, and has been found very useful in eliminating those who are particularly susceptible to anilin poisoning. The test consists in making a slight abrasion on the skin of the forearm and rubbing in some anilin. In those who are particularly susceptible to this chemical, symptoms of poisoning rapidly ensue. Such a person is denied employment.

It has also been observed that symptoms of anilin poisoning generally appear after meals; particularly after the noonday meal, the patient will begin to vomit. The question arises, Does the gastric juice liberate the anilin from its various combinations or is the anilin simply then introduced by way of mouth from food, hands, utensils, etc.? This point will have to be cleared up in the future.

Since nitrobenzene poisoning closely simulates anilin poisoning, it is important to bear in mind that in the former instance the breath, vomitus and the excreta of the patient have an odor of bitter almonds (Dr. Merzbach).

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FREQUENCY OF URINATION IN WOMEN *

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A large proportion, perhaps the majority, of women who seek medical advice have some urinary disturbance. It may be of such slight degree, or of so gradual an onset, that the patient is not aware that she is the victim of this particular trouble. In such case the history of the disturbance is elicited only after close questioning. On the other hand, it may be of such severity as to be the prime cause of consulting the physician.

There is ample explanation, on anatomic and physiologic bases, for the frequency of urologic lesions, and the consequent disturbances of urination, in women. When we consider the anatomic situation of the female urinary organs, and the physiologic exigencies of adolescence, of the child-bearing period, and of the menopause, there is little wonder that affections of these organs are so common, so diverse in character, and often so distressing. The sexual organs, so often the seat of lesions or new growths, the rectum and appendix, with rich blood and lymphatic supply for the transmission of infections to the bladder, the urethra, prone to infections and to injury incident to childbirth and pelvic operations, the kidneys, constantly eliminating bacteria supplied by the blood stream and so situated that they directly transmit infections to the bladder, even though not infected themselves, are all factors which may be concerned in the cause of urologic lesions in women, the one most frequent symptom of which is frequency of urination.

From a consideration of the various elements concerned, it is easily concluded that frequency of urination is by no means dependent on lesions primary in the bladder. One can see at a glance, therefore, how futile it is to treat a bladder affection per se, until it has been ascertained that the lesion is primary. One cannot rely on symptoms, which are often most misleading.

The keynote to the study and management of these conditions is a correct diagnosis. This can be made only after a complete history has been taken, a thorough physical examination made, and an inspection of the bladder and urethra, as well as an exploration of the ureters and a separation of the urines from the kidneys, affected. It is often necessary to supplement these measures by a combined cystoscopic and Roentgen examination, outlining the tract.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The accompanying tables, with the comments, of 1,000 cases of frequency of urination in girls and women which have come under my observation in hospital and private practice, is presented with the hope of stimulating a closer study of these disturbances and the underlying causative factors.

Considering, *ad seriatim*, the nine age periods given in the tables, certain salient features of each will be noted.

First Decade (Table 1, from 1 to 9 years).—Undoubtedly, if the figures had included the pediatric services or children's wards, more than seven cases of frequency of urination in young girls would have been found in a general list of a thousand cases. But the urologist sees these patients, as a rule, in consultation with the family physician or the pediatrician, and, as I have said, is apt to see only the more severe cases. This is doubtless particularly true of cases of enuresis, and perhaps also of cases of frequency associated with gonorrheal vaginitis.

TABLE 1.—CASES IN THE FIRST DECADE

Diagnosis and Etiology	No. of Cases
Enuresis	1
Spina bifida	1
Vaginitis and urethritis (gonorrheal)	3
Pyelonephritis (colon bacillus) *single*	1
Pyelonephritis (colon bacillus) double	1
Total	7

It will be noted that the colon bacillus makes its appearance in the first group, causing pyelonephritis of one kidney in one case, and of both kidneys in another, this, in turn, giving rise to frequency of urination. We know that such infections accompanying intestinal disorders are common in children, and if we are able to locate a renal lesion, and to improve the urologic condition by local treatment in conjunction with the general measures, such cases may be seen more often by the urologist.

Second Decade (Table 2, from 10 to 19 years).—Of the sixty-one cases belonging to this age group, forty-six had urethritis and trigonitis as the immediate causative factor in urinary frequency. Of these, twenty-nine gave a history of vaginal infection, gonorrheal in character. In seven others, cultures from the upper urinary tract showed the primary focus to be the kidney. In five cases the symptoms appeared following catheterization after operation. In two cases the frequency of urination was undoubtedly associated with urethral hyperemia due to masturbation. In six the urinary disturbance was secondary to colon bacillus infection of the kidney, and in one it followed influenza.

In two of the cases of frequency associated with urethritis and trigonitis, renal calculi were found, and in one renal tuberculosis. The frequency in this case, as in any case of urinary *tuberculosis*, was not due to the lesions in the kidney, but to the secondary involvement of the bladder. If the kidney is draining, the bladder symptoms (frequency, burning and tenesmus) will appear; otherwise, no bladder symptoms are manifest. In nearly all the cases of renal tuberculosis, a thickened, tender ureter on the affected side was easily palpated through the vaginal wall, and a large percentage revealed stricture of the ureter.

Of the total number of this group (sixty-one), there were only four cases of enuresis—a relatively smaller number than the first group presented.

In five cases the condition was apparently purely neurotic, no urologic lesion being found to explain the bladder irritability. According to Cary,[1] this condition is rarely traceable to a pure neurosis. Repeated examinations of the urine, he asserts, may disclose nephritis or tuberculosis of the kidney as a cause of the frequency. In the cases herewith recorded, no such cause could be found. Whether this condition is a "pure neurosis" or a psychosis must be left for the neurologist to determine. It is for the urologist to exclude absolutely, by the various methods of examination at his command, the possibility of any local factor or factors in the production of this annoying trouble, before he falls back on the diagnosis of last resort.

In the second age group, pressure on the bladder appears as the cause of frequent urination in three cases, the pressure in one being due to pelvic abscess, in two to malpositions of the uterus. It has been asserted that it is doubtful if pressure on the bladder alone causes vesical symptoms, but must be associated with a secondary complication. In all of these cases there was congestion of the urethra and trigon. Pressure caused by stone in the lower ureter may lead to frequency due to a reflex, or it may give rise to cystitis and urethritis, with consequent frequency of urination, two such cases being found in this group.

Cyst of the floor of the bladder was found in one case, causing almost complete obstruction at the outlet of the bladder, and consequent overflow. The cyst was as large as a hen's egg, and projected upward from the floor of the viscus. With the cystoscope, light was transmitted through the cyst. The cyst wall was punctured with the high frequency cautery, and collapsed, whereupon the patient began to void at once. The cyst was entirely destroyed by this means.

Third Decade (Table 3, from 20 to 29 years).—In the third age group, urethritis and trigonitis appear much more frequently, constituting 165 out of a total of 219 cases of this group. While the majority of these cases were secondary to or accompanied a vaginal infection, other patients dated their symptoms from a catheterization after operation; some were secondary to a colon bacillus pyelonephritis and colon bacillus pyelonephritis occurring during pregnancy, and others accompanied syphilis of the kidney and nephritis.

TABLE 2.—CASES IN THE SECOND DECADE

Diagnosis and Etiology	No. of Cases
Urethritis and trigonitis with vaginitis or history of vaginitis (gonorrheal)	29
Urethritis and trigonitis with symptoms since catheterization after operation	5
Urethritis and trigonitis with hyperemia due to masturbation	2
Urethritis and trigonitis from colon bacillus pyelonephritis	6
Urethritis and trigonitis following influenza	1
Enuresis	4
Neuroses	5
Pressure on bladder (pelvic abscess, 1; uterus, 2)	3
Calculus in lower ureter	2
Calculus in kidney, with urethritis and trigonitis	2
Tuberculosis of kidney, with urethritis and cystitis	1
Cyst of bladder, causing obstruction and overflow	1
Total	61

In this connection, the condition of the gastro-intestinal tract is of supreme importance, especially the teeth. While, in many cases in which the patient is seen by the urologist in consultation, the general findings of the physical examination are given him by the physician in attendance, I believe it to be the duty of the urologist personally to make his own observations. If this were done, an explanation for these annoying infections of the vesical orifice and urethra and sometimes the entire bladder would more often be found, and the patient would be permanently relieved by general and local treatment, rather than by the local applications of the urologist, or the bladder irrigations of the family physician, and perhaps, the gynecologist.

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[1] Cary, W. H.: Bladder Irritability in Women, Am. Jour. Obst., 1915, 71, 259.

TABLE 3.—CASES IN THE THIRD DECADE

Diagnosis and Etiology		No. of Cases
Urethritis and trigonitis		124
Urethritis and trigonitis from catheterization after operation		7
Congestion at menstruation		4
Urethritis and trigonitis, colon bacillus pyelonephritis		17
Urethritis and trigonitis, colon bacillus pyelonephritis pregnancy		2
Urethritis and trigonitis, with syphilis of kidney		2
Urethritis and trigonitis, with nephritis		3
Urethritis and trigonitis, with stricture of urethra		6
Pressure on bladder:		
Fibroids	2	
Uterus (pregnancy)	3	
Displacements	2	
Pelvic abscess	2	
		9
Tuberculosis of kidney, with urethritis and cystitis		9
Neuroses		9
Prolapsed kidney		4
Prolapsed kidney with pyelonephritis		3
Calculus in ureter		7
Calculus in kidney, with pyelitis		6
Urethritis and trigonitis, with cystocele		3
Urethritis and trigonitis, from tuberculosis of ureter		1
Calculi in bladder		1
Enuresis		1
Traumatic stricture of urethra		1
Total		219

In six cases of this age period, the inflammation in the urethra was sufficiently severe and of such duration as to give rise to stricture. These observations have shown stricture of the urethra in the female to be a common pathologic condition. I have often had patients experience immediate relief after a single dilation of the urethra, while in others it was necessary repeatedly to cauterize the thick, edematous mucous membrane or polypoid growths about the bladder neck, before relief could be obtained.

In three cases the urethritis and trigonitis were associated with cystocele, and in one with tuberculosis of the ureter (the kidney having been removed).

Congestion during menstruation apparently gave rise to frequency of urination in four cases of this group.

Pressure on the bladder was found in nine cases, the pressure being due to fibroids, in two cases; uterus (pregnancy), in three; uterine displacements, in two, and pelvic abscesses, in two.

In nine cases tuberculosis of the kidney, with urethritis and cystitis, gave rise to the urinary disturbance. In four cases there was prolapsed kidney, with intermittent frequency, in three prolapsed kidney with pyelonephritis, and in six calculus of the kidney with pyelonephritis. Calculi in the ureter were found in seven cases, and in the bladder in one.

In nine cases no demonstrable cause could be found other than the general neurotic history of the patient. Organic lesions and local infections were carefully excluded in all of these cases.

Enuresis appeared in only one case of this group, showing a tendency to overcome this condition as age advances, and pointing to the educational management of at least a proportion of these cases.

Fourth Decade (Table 4, from 30 to 39 years).—Urethritis and trigonitis are still conspicuous causes of frequency of urination, as will be seen from the table, though the proportion is somewhat smaller than in the preceding group. The symptoms in seven cases were traceable to catheterization after operation. Colon bacillus kidney infection was found in twenty-five cases of this group, and pyelonephritis associated with infections other than colon bacillus and tuberculosis was found in six cases. Urethritis and trigonitis associated with stricture of the urethra was found in thirteen cases, with cystocele in nine cases, and with calculi in the kidney in seven cases.

Pressure on the bladder was found in a much larger proportion of cases of this group (thirty-two) than in any of the others. The pressure was due to the pregnant uterus in eight cases, to fibroids in three, to pelvic abscess in six, to uterine displacements in eleven, and to ventral fixation in four.

This age group presents the largest number of cases in which no organic lesion or local infection could be found, and in which the frequency could fairly be placed on a neurotic basis.

Calculi in kidney, ureter and bladder are noted in this group. One case of stone in the bladder was particularly interesting in view of the fact that two calculi were found in the center of a growth (papilloma) of the bladder. Four other cases presented papilloma of the bladder as the cause of irritability and frequency of urination.

More cases of prolapse of the kidney were noted in this group than in any other. Of the seventeen cases, eleven were associated with colon bacillus pyelonephritis. The frequency with which infection is found in displaced kidneys tends to confirm the theory that congestion in such an organ predisposes to infection. Polycystic kidneys were found in three cases.

TABLE 4.—CASES IN THE FOURTH DECADE

Diagnosis and Etiology		No. of Cases
Urethritis and trigonitis		116
Urethritis and trigonitis from catheterization after operation		7
Urethritis and trigonitis, traumatic		4
Congestion during menstruation		4
Urethritis and trigonitis from pyelonephritis (colon bacillus)		25
Urethritis and trigonitis from pyelonephritis (not colon bacillus) or tuberculosis		6
Pressure on bladder:		
Pregnant uterus	8	
Fibroids	3	
Pelvic abscess	6	
Displacements	11	
Ventral fixation	4	
		32
Prolapsed kidney		6
Prolapsed kidney with pyelonephritis (colon bacillus)		11
Tuberculosis of kidney with cystitis and urethritis		12
Neuroses		12
Urethritis and trigonitis with cystocele		9
Urethritis and trigonitis with calculi in kidney		7
Calculus in ureter		6
Calculus in bladder		2
Calculus in bladder with growth		2
Relaxation of sphincter		5
Nephritis		5
Urethritis, trigonitis, stricture of urethra		13
Polycystic kidney		3
Urethrovaginal fistula		2
Vesicovaginal fistula		3
Prolapsus uteri		3
Papilloma of bladder		4
Traumatic stricture of urethra		2
Adhesions of bladder		2
Caruncle		2
Oxaluria		3
Chyluria		1
Pyelonephritis, pregnancy		4
Stricture of ureter		2
Total		315

Fistulas and carunculae appear in this group for the first time, as do likewise adhesions of the bladder. Oxaluria was found in three cases, and chyluria in one. The oxaluria was an accompaniment of constipation. The case of chyluria was exceedingly interesting. The urine from one kidney was loaded with chyle, which appeared only during pregnancy and the cient, and that tissue absorption rather than kidney activity plays the major rôle in this mechanism. The observation which interests us most in this connection is the influence which colloidal solutions exert on the rapidity of return of an altered blood volume to a normal state. Following the injection of colloidal gelatin solutions, they have found a considerable delay in the restoration of the blood volume to normal; that is, the regulation is less efficient. Their results may, then, be interpreted to mean that a fluid in combination with a colloid is not so readily absorbed by the cellular membranes as is a solution not so combined; whereas the injection of saline solutions is followed by a rapid tissue absorption which results in a reduction of the total bulk of circulating fluid.

Fischer and Hogan have come essentially to the same conclusions. They, however, are inclined to place greater emphasis on the secretory activity of the kidneys in the regulation of blood volume. According to their views, colloidal solutions exert their beneficial effects in maintaining the blood volume in a little different way. They have shown that water in a "bound" state, that is, in colloidal combination, is not readily secreted by the renal epithelium, whereas "free" water, such as saline, escapes with rapidity from the blood vessels, and is secreted by the kidneys.

Without entering into a discussion concerning the relative importance of tissue absorption, and of kidney activity in the maintenance of a normal blood volume, the conclusion is justified that fluid introduced in colloidal combination leaves the vascular system more slowly than "free" fluid.

About a year ago, Hogan[4] emphasized the great practical application of this point by calling attention to the fact that intravenous injections of colloidal gelatin solutions are not diuretic, and that their introduction into the circulting stream results in a higher and in a more sustained blood pressure. Our attention was directed to this problem several months ago in connection with some unpublished experiments on plasmaphaeresis. During the course of this study we found that repeated bleedings followed by the injection intravenously of a suspension of red blood corpuscles in Locke's solution[5] could not be carried out more than two or three times without a great drop in the animal's blood pressure, which was frequently fatal. On the other hand, similar injections of corpuscles in Locke's solution containing acacia gum (gum arabic) were not accompanied by such a striking lowering of the pressure, and permitted a more frequent repetition of the injections. This observation suggested to us the use of an acacia-Locke solution therapeutically in man and in animals for the purpose of combating the immediate mechanical ill effects of lowered pressure following excessive hemorrhage. Such a solution is especially to be recommended for this purpose because of the ease with which it can be prepared and sterilized, and because of its apparent nontoxicity even in quantities approximating the total blood volume of an animal.

For the preparation of the solution we employed the acacia commonly used by pharmacists for emulsions and emollient mixtures. As is well known, this is an amorphous substance which dissolves slowly in water, forming a thick, transparent mucilage of acid reaction. Acacia gum is chemically composed of carbon, hydrogen and oxygen. For a long time most of the gums were classified as carbohydrates, but the researches of O'Sullivan[6] have shown that gum acacia is an acid of high molecular weight, composed of an acid nucleus to which are attached a number of different carbohydrate radicals. The better kinds of gum acacia do not reduce Fehling's solution,[7] a red precipitate being due to the presence of small quantities of a reducing sugar or of dextrin, which exists in certain inferior varieties of the gum.

In practice, we have found it best to use an approximately 5 per cent. acacia-Locke solution. This gives a fluid the viscosity of which is about 2.2, approximating closely to the viscosity of blood plasma (from 1.7 to 2.0). Subsequent observations may indicate the desirability of using slightly lower or slightly higher percentages of acacia.

Locke's solution is to be preferred to ordinary saline for intravenous use because its substitution for salt solution in the treatment of hemorrhage and shock has given better results in the hands of some clinicians, and further because its slight alkalinity is sufficient to offset the acidity of the acacia, thereby yielding a fluid which is neutral to litmus.

The acacia goes into solution with some difficulty. Solution, however, is facilitated by stirring and shaking. The fluid is now filtered through heavy filter paper, either on an ordinary funnel or with the aid of suction, and is then immediately sterilized in the autoclave in the manner customary for the sterilization of salt solutions. Sterilization of the acacia solution should be carried out as soon as possible after its preparation, so as to give rise to minimal bacterial contamination.

Some preliminary experiments on animals together with the employment of the acacia solutions in a number of patients following hemorrhage have convinced us of the value of this solution in combating lowered blood pressure due to depletion of the circulating fluid. Following shortly on a rapid hemorrhage in dogs with a loss of blood amounting to from one half to one third of the blood volume, the injection of acacia solution in moderate amounts will at once produce a striking elevation of the pressure. In one instance, the blood pressure rose from a level of 30 mm. of mercury, to which it had fallen after rapid hemorrhage, to its initial level of 110 mm. of mercury within ten minutes, and in spite of further smaller hemorrhages continued at a high level for a period over one hour and thirty minutes. The good effects resulting from the reestablishment of a normal blood volume and a more nearly normal pressure were noticeable also in an increased fulness of the peripheral vessels, in a rise in the pressure pulse, and in a more forcible heart beat.

Equal success has attended the use of acacia solutions following the hemorrhage and shock observed in a limited number of patients. In the treatment of hemorrhage in man, it should be emphasized that in the employment of colloidal solutions the same rules should be observed which hold in case of the introduction of saline solution intravenously. The infusion of the acacia solution should be given as soon as possible after the onset of hemorrhage and before suffi-

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[4] Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, The Journal A. M. A., Feb. 27, 1915, p. 721.

[5] Locke's solution is a solution of sodium chlorid, 0.9 gm.; potassium chlorid, 0.042 gm.; calcium chlorid, 0.024 gm.; sodium bicarbonate, 0.03 gm.; glucose, 0.1 gm., and distilled water, a sufficient quantity to make 100 c.c.

[6] O'Sullivan, quoted by Thorpe, Edward: A Dictionary of Applied Chemistry, London, Longmans, Green & Co., 1912, 3, 21.

[7] Allen, A. H.: Commercial Organic Analysis, Philadelphia, P. Blakiston's Son & Co., 1912, 1, 440.

Death in all these cases was by slow exhaustion with
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IENT OF HODGKIN'S DISEASE *

NWICK HOLDING, M.D.
AND
L BROWN, M.D.
NEW YORK

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The first symptoms noticed by these patients were enlargement of the cervical glands, usually on one side, and pruritus of the extremities. Enlargement of glands is the most important symptom. We are of the opinion that pruritus is an important early symptom of Hodgkin's disease, and in cases of persistent pruritus, especially of the extremities, aggravated by perspiration, the possibility of Hodgkin's disease should be more generally considered by practitioners. From a therapeutic point of view an enlarged gland is the most important symptom, as by excision and microscopic examination an immediate diagnosis of the nature of the disease may enable us to save life in an early case of Hodgkin's disease. It is all important, therefore, to remove the enlarged glands for microscopic examination and in toto if the case is seen early when the lesion is localized. If we are to wait for other symptoms to manifest themselves, such as general enlargement of the glands, enlarged spleen or liver, anemia and fever, the patient is then beyond help and the prognosis is bad.

The differential diagnosis from lymphatic leukemia, lymphosarcoma, thymoma and other adenopathies of the lymphatic system depends on the microscopic examination of the blood and excised tissues. Clinically it was noticeable in our series that although the cases were all well advanced, the enlarged glands in Hodgkin's disease did not occur as such prominent tumor masses as they did in the other conditions mentioned; the disease tends to extend generally throughout the lymphatic system without localizing in initial large prominent tumor masses. This is well shown in the accompanying illustrations. Some of the clinical differences in Hodgkin's disease and lymphosarcoma of the neck are pointed out in parallel columns.

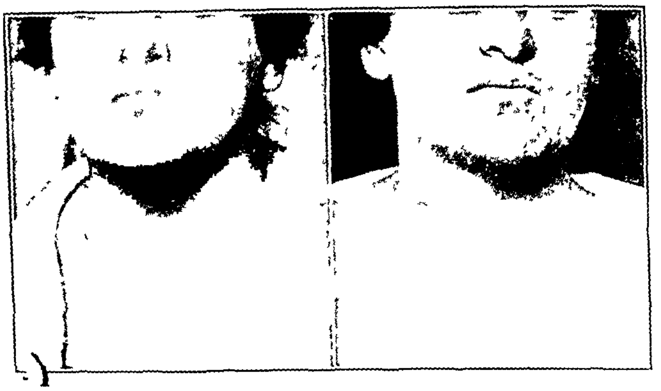

Fig 1—Case of Hodgkin's disease, before and after treatment: Twenty three massive treatments with Roentgen deep therapy, 30 X (Kienbock) to each area, filtered through 4 mm of aluminum; total, 690 X (Kienbock) Areas treated both sides of neck; both groins, mediastina, anterior, posterior and lateral, axillae Treatment began, March 21, 1916 Last treatment, July 11, 1916 Patient improved, but ultimately relapsed and died

Seven patients were males; eleven patients, females; the ages varied from 6 to 56 years. All but one of the patients had primary enlargement of the nodes in one side of the neck and the mediastinum. One patient had

CLINICAL DIFFERENCES

Hodgkin's Disease	Lymphosarcoma
No macroscopic involvement of tonsil	Macroscopic evidence of growth in tonsil
Lymphatic swellings in neck tend to be isolated, not adherent to deeper structures or skin, softer in consistence, and tumor masses are less prominent	Lymphatic swellings firm, hard, and adherent to deeper structures Skin distended and adherent over tumor
Death occurs late	Death occurs early
General and constitutional symptoms, such as anemia, loss of weight and appetite, develop	General and constitut toms develop late

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The patient was given antisyphilitic treatment as well as roentgenotherapy, and is now symptomatically well, for which reasons it might appear that this case was really syphilis. The rapid recurrence, however, of the tumor in the scar immediately after operation would argue strongly against syphilis and in favor of the diagnosis of Hodgkin's disease. Eight patients had enlarged nodes on both sides of the neck. In seven cases both axillae were involved. In six both groins were involved. None of the patients had any history or any evidences of tuberculosis or other definite infections except the single patient who had a positive Wassermann reaction. The initial symptom in two of the cases in which we got our best results was pruritus of the arms and legs aggravated by perspiration, which symptom was treated over extended periods by general practitioners, internists and dermatologists before the true diagnosis was recognized. These two patients were particularly intelligent, and emphasized this initial symptom. Eight patients were operated on from one to five times. All these patients had rapid occurrences and extension of the disease generally. In most of our cases we were able to demonstrate typical lesions of the mediastinal glands by means of the Roentgen rays. If this method were employed as a routine measure, patients would be spared many useles because lesions inaccessible to the k shown. Four patients were treated wi ins; all these patients failed to show im so were transferred to Roentgen tre which they showed rapid regression toms and general improvement in heal

One patient was treated with ten in tions of vaccine made from one of th The patient had simultaneous Roentger over certain nodes. These nodes pron in size, which w. with the not dimi proves did not tional a improv the Rc to the tients serum muni *hodgl* oped a b d prov velo pro dis ger On by th va nent result. We have every radium will produce fully as g gen rays in Hodgkin's diseas

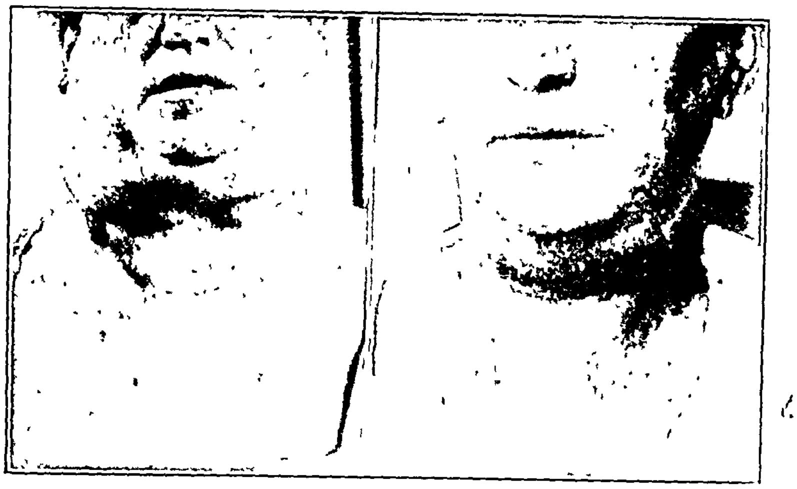

Fig. 2.—Case of lymphatic leukemia, before and after treatment: Thirty-two massive treatments with Roentgen deep therapy, 30 X (Kienböck) to each area, filtered through 4 mm. of aluminum. Total, 1,430 X (Kienböck). Areas treated: both sides of neck; both axillae; both groins; mediastina from all sides; abdominal lymph nodes. Treatment begun, March 19, 1915. All palpable nodules disappeared after 655 X (Kienböck) were administered. Leukocytes dropped from 164,000 to 44,000. Patient became symptomatically well. Last treatment, Dec. 28, 1915. Patient died, Jan. 11, 1916, of exhaustion, terminal illness one week in duration. Patient complained of a sense of pressure about the breast. No necropsy.

SERIES OF CASES OF HODGKIN'S DISEASE

Case No.	Age, Yrs.	Sex*	Duration	Locus†	Initial Symptom‡	Treatment§			Results	Present Status	Roentgen Ray Units; Kienböck
						Previous Operations	Roentgen Ray	Other¶			
1	23	♀	5 yrs.	1, 2, 3, 4, 5	a	5	...	Vaccine	Improved	Dead	1,200 X
2	53	♀	2½ yrs.	1, 3	a	2	...	Toxins	Improved	?	540 X
3	16	♂	2 yrs.	1, 2, 3, 4, 5	a	1	...	....	Improved	D. T.	150 X
4	29	♂	4 mos.	1	a	1	. .	Anti-syphilitic	Symptom free	Symptom free	300 X
5	41	♀	1 yr.	1, 2, 3, 4, 5	a	1	.	Radium	....	Dead	240 Milli-curie hours
6	23	♂	1 yr.	1, 3	a	...	. .	Toxins	Improved	U. T.	1,020 X
7	27	♀	4 mos.	1, 3	a	...	. .	....	Improved	?	210 X
8	42	♂	8 mos.	1, 2, 3	a	...	...	Serum	Improved	Dead	2,130 X
9	7	♂	1 yr.	1, 3	a	2	...	....	Unimproved	D. T.	540 X
10	42	♀	8 mos.	1, 3	a	...	X	Toxins	Improved	....	570 X
11	9	♀	6 mos.	1, 3	a	1	X	....	Unimproved	D. T.	150 X
12	22	♀	1 yr.	1, 3	a	1	X	....	Unimproved	D. T.	180 X
13	26	♀	2 yrs.	1, 2, 3, 4	Pruritus	1	X	Serum	Improved	U. T.	2,670 X
14	6	♂	8 mos.	1, 3	a	...	X	....	Improved	U. T.	102 X
15	56	♂	2½ yrs.	1, 2, 3, 4	a	...	X	Toxins	Improved	Dead	660 X
16	27	♀	10 weeks	1, 3	a	...	X	....	Improved	U. T.	570 X
17	27	♀	18 mos.	1, 3	a	...	X	....	Improved	U. T.	570 X
18	35	♀	3 yrs.	1, 2, 3, 4	Pruritus	...	X	....	Symptom free; improved	U. T.	2,730 X
Totals........						8	17	....	....	....	....

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* In this column ♂ indicates male and ♀ female.

† The numbers refer to the regions of the body in which lesions were present: 1, neck; 2, axilla and liver.

‡ The letter "a" means enlarged glands.

numerals refer to the number of operations performed previous to Roentgen treatment; " other than surgery or Roentgen ray.

discontinued treatment, and "U. T." still under treatment.

Jour. A. M. A.
March 3, 1917

f acid reaction. carbon, hydro- st of the gums e researches c ia is an acid o acid nucleus t nt carbohydrat acacia do no pitate being du a reducing suga in inferior varie to use an approximation. This gives a 2.2, approximating asma (from 1.7 to indicate the desir- slightly higher per- ed to ordinary saline substitution for salt rhage and shock has of some clinicians, linity is sufficient to ereby yielding a fluid with some difficulty. by stirring and shak- through heavy filter nel or with the aid of sterilized in the auto- for the sterilization of f the acacia solution as possible after its to minimal bacterial

ts on animals together acacia solutions in a hemorrhage have con- s solution in combating depletion of the circu- tly on a rapid hemor- blood amounting to from ood volume, the injection fe amounts will at once of the pressure. In one e rose from a level of h it had fallen after rapid el of 110 mm. of mercury spite of further smaller a high level for a period minutes. The good effects ishment of a normal blood rly normal pressure were eased fulness of the periph- he pressure pulse, and in a

ded the use of acacia solu- hage and shock observed in ients. In the treatment of ould be emphasized that in al solutions the same rules hold in case of the introduc- ravenously. The infusion of ld be given as soon as pos- hemorrhage and before suffi-

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4. Hogan, J. J.: tions in Shock, The Journal A. M. A.,

5. Locke's solution is a solution of sodium sium chlorid, 0.042 gm.; calcium chlorid, 0.024 gm., sod 0.03 gm.; glucose, 0.1 gm., and distilled water, a sufficient qu make 100 c.c.

Blakiston

orpe, Edward: A Dictionary of Applied Green & Co., 1912, 3, 21.

cial Organic Analysis, Philadelphia, P. , 440.

whether or not the results from radium will be any more lasting than those of the Roentgen rays. Fourteen of the eighteen patients were treated with the Roentgen rays alone with rapid retrogression of the tumors and general constitutional symptoms in all cases. Three patients discontinued treatment before results could be noted. Two patients, symptomatically well, are kept under observation and given prophylactic Roentgen treatment once a month; thirteen were improved; six are dead; eight are still under treatment.

As regards the bearing on the prognosis of histologic structure, the stage of the disease, and the degree of anemia, it is noteworthy that the prognosis was worse in those cases in which the morphology of the tumor presented that of typical well developed Hodgkin's disease, in those cases which had been of several years' duration when the patients were referred for treatment, and in those cases in which the anemia was markedly developed. In relation to the effect of mixed toxins when used for a long time, it is of interest to compare the results in Cases 10 and 15 with those of Cases 2 and 6. The histologic pictures in Cases 10, 15 and 2 were those of typical Hodgkin's disease; that in Case 6 was atypical, showing more reticulum cells and presenting an appearance more like sarcoma. The morphology of Cases 2 and 6 as compared with Cases 10 and 15 indicates that Case 6 was more malignant in type than any of the other three cases and that Case 2 was as malignant as Cases 10 and 15. In Cases 10 and 15, the patients were given mixed toxins over a long period of time before being given over to Roentgen treatment. In Cases 2 and 6 the patients were submitted to mixed toxins only for a short period of time before being placed wholly under Roentgen treatment. The results in Cases 10 and 15 were bad while the results in Cases 2 and 6 were good. We feel that from our observations we are justified in holding that the patient's welfare is distinctly hazarded by the use of mixed toxin treatment for any extended length of time before placing him under Roentgen treatment, and we strongly advocate that the interests of the patient would be served best if the mixed toxin treatment were omitted altogether in these cases. In Case 18 the result has been better than in any of our previous cases. This may be explained to some extent by the patient's strong constitution and lack of anemia, and it may also be of interest to state that in this case there is some evidence that the initial lesions were of thymic origin. It is to be regretted that we were unable to secure necropsies in any of our cases. It was noticeable that the enlargement did not recur in glands treated by the Roentgen ray. When enlarged glands did develop they were in locations other than those which had been treated.

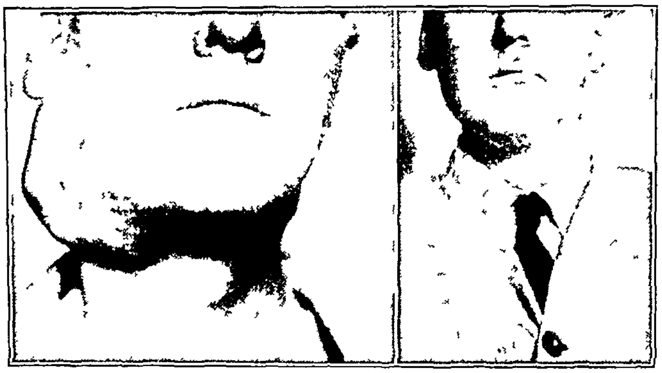

Fig 3—Case of lymphosarcoma, before and after treatment: Duration previous to our observation, five months Mixed toxin treatment, November, 1913, to January, 1914. "No visible change Measurements are the same" Jan 3, 1914, one massive Roentgen treatment given January 10, growth had diminished one half January 15, excision en bloc. (Dr. W. A. Downs). January 26, tumor present in the left neck just below the angle of the mandible; 7 by 10 cm. January 27, Roentgen treatments resumed. Feb. 7, both sides of neck almost normal in contour. February 10 28, autogenous vaccine prepared from the excised tumor was used (Dr. R. Weil) March 4, 13, 16, 20, killed cultures of diphtheroid bacillus cultures obtained from the excised tumors were given (Dr. Torrey). March 16, 1914, superficial nodules yielded to the Roentgen treatment, but internal metastases in lungs, stomach and abdominal cavity continued to grow. Twelve massive Roentgen treatments, 3,604 X (Kienböck) units, were given. Jan 14, 1915, patient died Necropsy showed lymphosarcomatosis

Death in all these cases was by slow exhaustion with extreme anemia. In none of the cases were there any deaths by asphyxia, dyspnea or other disagreeable symptoms due to the mechanical pressure of the enlarged glands such as commonly occurs in cases of Hodgkin's disease treated by the usual methods. This is a very material point in favor of the Roentgen treatment of these cases.

TREATMENT

The treatment of Hodgkin's disease is extremely unsatisfactory both in results obtained and methods employed. Perhaps this is to be expected in a disease, the cause of which is unknown, and which on microscopic examination of involved tissues in its early stages is extremely difficult to differentiate from lymphosarcoma, lymphoma, thymoma, and the other adenopathies of lymphoid origin. No specific or constitutional method of treatment has been established. The modern methods advised are essentially the same as those employed for malignant tumors (complete excision and diagnosis by microscopic section in the earliest stages while the lesion is restricted to a single locus, followed by prophylactic Roentgen treatment, together with the searching out and the elimination of all possible foci of infection).

We feel that particular emphasis should be laid on the necessity of extensive general Roentgen treatment in all of these cases immediately after the diagnosis is established. The surgical removal is only local in its action, and constitutes more or less of a shock and drain on the patient's vital resources.

The Roentgen rays should be given over all lymphatic structures of the body, including the mediastinal and abdominal lymph nodes, thus giving us a general action which in proper dosages we have invariably found to improve the patient's general physical condition instead of weakening him as the extensive surgical operations did in the fully developed stages of the disease.

The matter of the best Roentgen-ray dosage to give and its regulation on some physiologic basis is a very important question which we feel is far from being satisfactorily settled. Before the Coolidge tube was perfected we gave smaller doses. With the increased dosage which we are enabled to give with the Coolidge tube, we are able to get the symptoms under control more quickly than we did previously. However, we are not convinced that our therapeutic results in Hodgkin's disease are any more lasting than they were formerly with less powerful apparatus. Of late we have felt that we were getting better results by giving the massive doses at the beginning of our treatments and continuing them until the symptoms were controlled and then giving more moderate dosages to keep the development of the disease in abeyance. At present we feel that we are justified in saying only that the optimum dosage has not been worked out and that the maximum dosage which we have been able to give with the Coolidge tube when long continued is not as beneficial as initial large doses until the symptoms are controlled, followed by smaller doses repeated at frequent intervals. This whole question needs further study, and the discovery of some physiologic method of checking the dosage to replace the present methods of the maximum dosages that the skin will tolerate.

In our experience the administration of inorganic arsenic in large doses as generally recommended in medical textbooks has been attended with poor results, and where efficient Roentgen-ray or radium treatment is available, arsenic in large doses should be avoided. We much prefer to overcome the anemia by the use of sodium cacodylate, iron, and constant and persistent elimination of all stasis and autointoxication from the intestinal canal as being more efficient and less harmful treatment.

As in all diseases for which no cure has been found, the literature is frequently embellished by premature reports of cures. On account of the common history of relapse in these diseases we agree that it is wise to demand that a patient shall be symptom free at least five years before the term "cure" is employed. In this connection, Johnson's dictum in regard to cancer cures is quite appropriate: "I never count a case of malignant tumor cured until the patient is dead of some other disease."

We have no cured cases to report at this time. Our experience has made us skeptical in regard to methods of treatment which have given results in only one observer's hands, even if his enthusiasm leads him to maintain his claims over long periods. In the so-called incurable diseases, and in the light of medical history, no method of treatment which has given results in a single observer's hands can be accepted as scientific or truthful until his results have been confirmed by other observers using the given method.

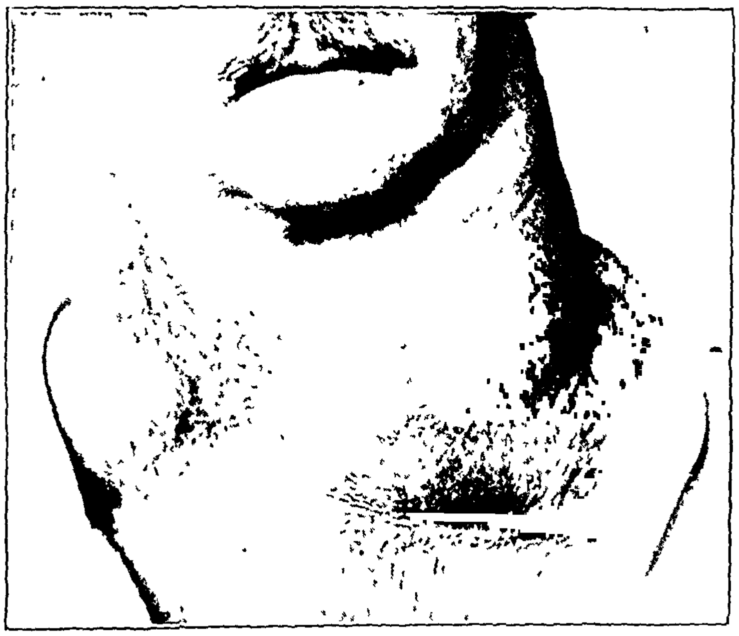

Fig 4 —Case of lymphadenoma: Forty one massive treatments with Roentgen deep therapy, 30 X (Kienbock) to each area, filtered through 4 mm of aluminum Total, 1,620 X (Kienbock). Areas treated: both sides of neck; both axillae, over abdominal lymph nodes; mediastina from all sides Patient under treatment from June 24, 1915, to Nov. 1, 1915 The size of the tumors diminished very materially but never disappeared. Patient dead.

In regard to the few authenticated reports of cured cases out of the many thousands of patients who have died of this disease, it is only just to state that they were thoroughly treated in their incipiency by surgery and the Roentgen ray, and it is the experience of every one who observes large numbers of hopeless cases to witness an occasional sporadic instance of unusual recovery or spontaneous cure often when least expected. This is fortuitous, merely emphasizes the complexity of the forces we are dealing with when treating the human body, and stimulates us to search still further in such cases to find the reason for the recovery.

While the necessity of searching out hidden foci of infection in the tonsils and about the teeth, gums, etc., has been thoroughly emphasized, our experience is that efficient attention to ridding the intestinal tract of all stasis and autointoxication is practically neglected. We find it advisable to give nonirritating enemas twice a week or often enough to get scybala-free evacuations. The most harmless and efficient intestinal antiseptic we have found to be sulphur. Nonirritating enemas and sulphur should be persisted in until the ingestion of sulphur is not associated with any odor of hydrogen sulphid in the patient's stools.

It was noticeable that better results were obtained when treatment was instituted in the early stages of the disease when lesions were confined to one side of the neck. It is quite probable that if patients in whom the lesion was confined to the tonsil or to a few glands of the neck presented themselves for treatment, they might be cured by complete tonsillectomy and excision followed by postoperative Roentgen treatment; certainly these methods should be given a thorough trial in cases in the incipient stages of the disease.

CONCLUSIONS

1. Microscopic examination of the tissues in all cases of enlarged nodes, especially in the neck, is to be recommended.
2. Attention should be called to the fact that cases of persistent idiopathic pruritus may be due to Hodgkin's disease.
3. The treatment of Hodgkin's disease is unsatisfactory. No efficient treatment is known. The treatment recommended is that in vogue for malignant tumors and occult infections. The results to be expected are temporary ameliorations.
4. Recoveries are rare. Of the thousands of patients treated there are only two authentic cases in which the patients are reported symptom free after five years.
5. The Roentgen ray and radium are the only new agents found beneficial in this disease, and should be used in treating it, at least after operation.
6. A Roentgen examination of the chest is indicated in all cases before an extensive surgical removal is considered. This will save many patients from a needless operation.

53 West Fiftieth Street—235 West Seventy-First Street.

Health Dividends.—I will frankly admit that I could not realize what a great change could be brought about by systematic work and with very little expense. The money spent in antimalarial work here has paid the quickest and most enormous dividends I have ever seen from any investment, and after having had our experience I would, if necessary, do the work over again if I knew it would cost ten times the amount. . . . Our experience has taught us that the eradication of mosquitoes is not only the proper thing to do from a strictly health standpoint, but it is an exceedingly profitable thing to do.—Manager of a Southern cotton mill, quoted by J. W. Trask, *Public Health Reports*, Dec 22, 1916.

FREE TRANSPLANTATION OF THE OMENTUM

SUBCUTANEOUSLY AND WITHIN THE ABDOMEN

CARL B. DAVIS, M.D.
CHICAGO

The use of the unsevered omentum and free omental grafts is a well known surgical procedure. The literature concerning the fate of the free transplants is meager.

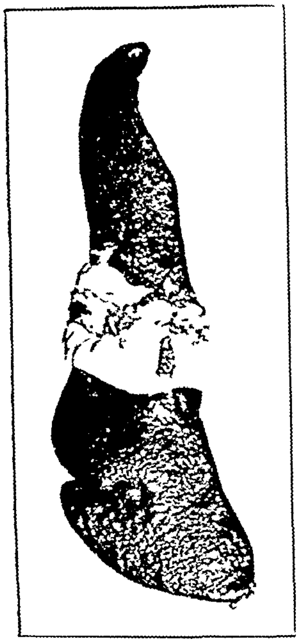

Fig 1.—The spleen severed a free transplant of the omentum inserted, the cut edges of the spleen approximated with catgut.

The purpose of these experiments was to determine the ultimate fate and value of omentum cut loose from its normal blood supply. Freeman suggests that an advantage of the free transplant over the undetached tip of the omentum is that we avoid entangling bands and injurious traction on the colon and stomach, and that if the entire omentum is attached to a given spot, a secondary emergency may develop in which it would be needed again.

TECHNIC

In this work the omentum was transplanted in large and small amounts to the stomach, large and small bowel, liver, spleen, kidney, bladder, and various areas denuded of peritoneum. It was also transplanted free beneath the skin to determine its ultimate fate when used for plastic purposes. It was used to check superficial and deep hemorrhages in the liver, spleen and kidney.

The grafts almost invariably did well wherever they were carried, becoming firmly adherent and remaining viable. One great objection to the use of the free omentum is the enormous production of adhesions wherever the free cut edge is exposed. This may be avoided in large part by accurately turning under all raw edges. The raw stump of the proximal portion of severed omentum must also be rolled back under normal omental tissue to avoid adhesion. A number of our animals died of pneumonia. As there was distemper in the laboratory at the time, it was taken for granted that this was the source of the complication, and no microscopic study of the lung was made. Later it was suggested that omental thrombosis might have been the cause of these deaths.

Strangulation of the bowel occurred in a case in which the graft was attached by widely separated sutures. A loop of small bowel passed under the graft became adherent, and the animal was lost.

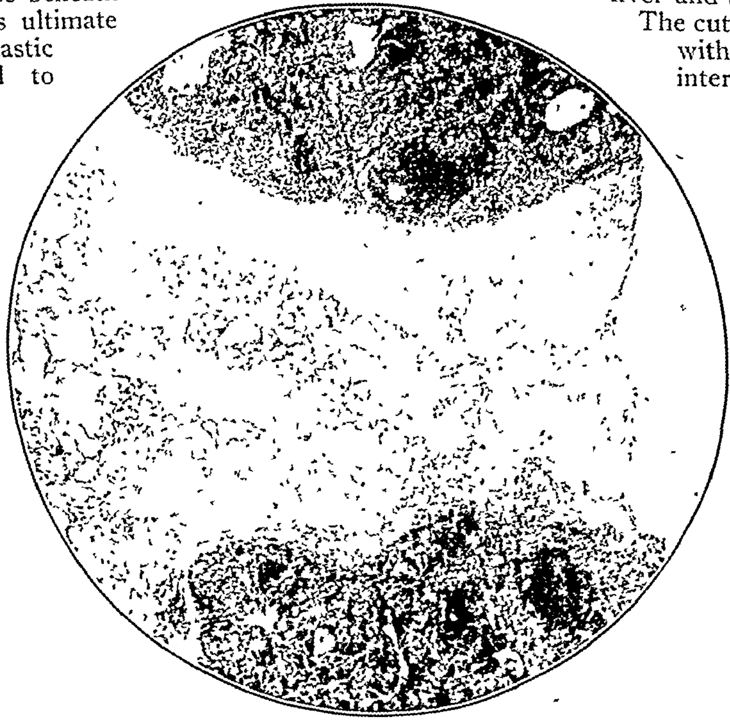

Fig 2.—Microscopic study of omentum removed from the spleen as shown in Figure 1, × 16.

RESULTS

The transplants to the various viscera and abdominal wall, when properly applied, gave excellent results. In a number of cases of adhesions of the small bowel in postoperative hernial sacs, we were able to cover a section of denuded ileum with transplanted omentum with excellent results, so far.

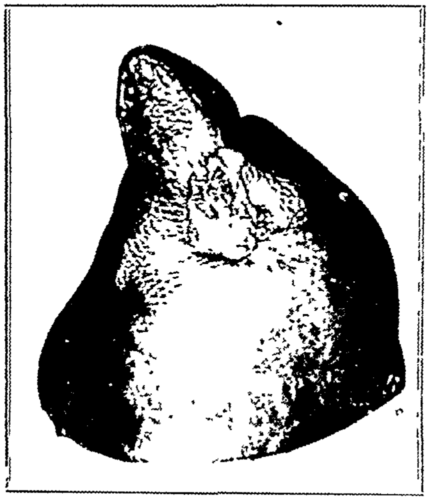

Fig. 3.—A through and through perforation of the liver, defect filled with omental graft; animal killed after six weeks.

Loewy was the first to use free omental transplants to check severe hemorrhage from the liver. In repeating Loewy's work, we abraded the surface of the liver, and in addition cut the body of the liver and spleen entirely through, or with forceps produced extensive through and through lacerations of the liver and spleen.

The cut edges were approximated with catgut sutures after an intervening omental graft had been applied. The lacerations were filled with omental plugs. The almost immediate hemostasis was quite striking and beyond that which might be expected by mechanical means.

Hilse has shown that tissue extracts of omentum, fascia and muscle possess the ability to shorten greatly the coagulation time of blood by activating the prothrombin.

The liver and spleen with their free grafts were removed at varying intervals from weeks to months, and showed complete viability of the tissues.

Omentum transplanted freely beneath the skin in masses an inch in diameter maintained the greater portion of their bulk.

The instrument devised to obviate these difficulties consists essentially of two specially designed needle holders hinged together scissors fashion but by means of an "open joint" as shown at *D*. The parts were also photographed to a somewhat larger scale (as in *A, B* and *C*) to show more detail.

Needles varying in length from 0.75 to 3 cm. or even greater lengths can be used. They are tapered and sharpened at both ends, and are curved to an arc of radius equal to the distance from the needle clamp to the open joint. Ordinary sizes of suturing silk, catgut or chromicized catgut may be used; for the most part we have used No. 2 chromic. The needles, while varying in length, are all made heavy and strong about the centrally situated eyelet so that there is never any danger of breaking, thereby losing a portion in the tissue, as has occurred with ordinary curved needles. Further, it is never necessary to let go of the needle and pick it up again, since it is always clamped in one side or the other of the instrument.

This instrument is useful, and a great comfort in controlling hemorrhage both at the operation and afterward, when it is even more difficult to work in the patient's mouth with curved needles because of the pain. In either case two general methods are used and never fail. First, if, as is usually the case, long hemostats can be used to clamp the bleeding points, seldom more than one or two in number, then the needle is quickly passed through the fold of tissue on both sides or even one side of the hemostat, and tied as the hemostat is loosened. Second, if, as rarely happens, there is no bleeding from definite points but rather a general ooze from the tonsillar fossa, the condition is readily handled by packing the fossa with a roll of oiled gauze, when it is extremely easy to pass one or two catgut sutures through the pillars, drawing them together over the gauze. The instrument here shown has been in use over a year without failure or repair. It is well made by Codman & Shurtleff of Boston

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A NEW ANESTHETIC SHIELD

Isabella C. Herb, M.D., Chicago

The chief advantage of this anesthetic shield (Fig. 1) is that it is not attached to the table, and consequently it can be arranged for various operative positions. It consists of a plate of steel 20 inches long, 8 inches wide and one-eighth inch thick with an upright rod 7½ inches high at each end.

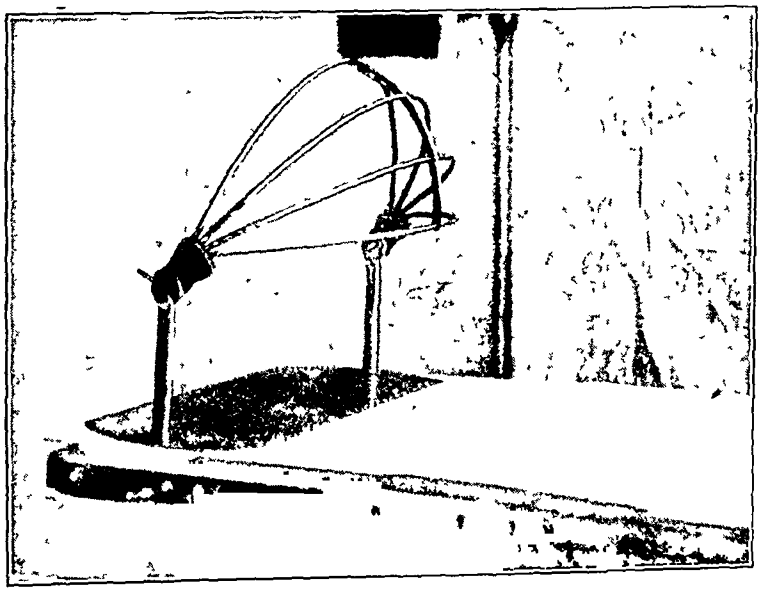

Fig. 1.—New anesthetic shield

The shield portion is composed of four bars, separated 3 inches at the highest point, which gradually converge and are inserted in the upright rods by a screw device which enables the adjustment of the shield at various levels to suit the thickness of the patient's chest. The plate is placed under the pillow or between the pillow and the pad covering the table.

Figure 2 shows the shield in position for the majority of operations.

Figure 3 shows the shield placed diagonally across the corner of the table for breast and shoulder operations.

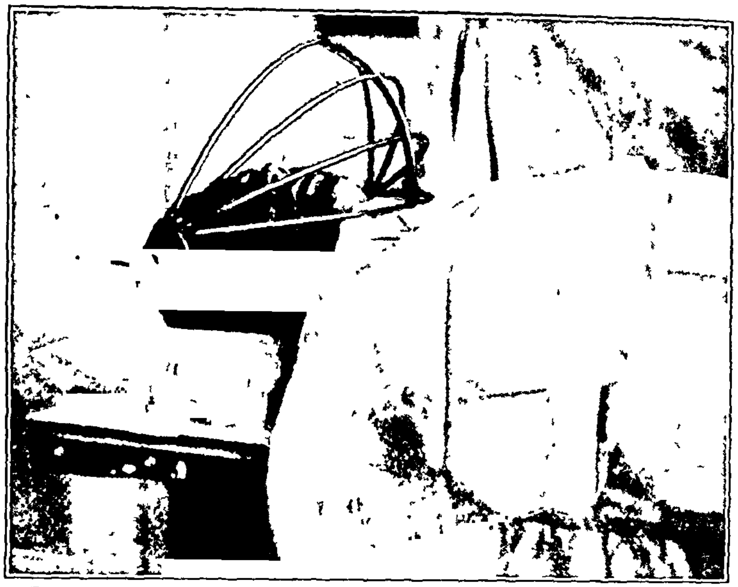

Fig. 2.—Shield in position for majority of operations.

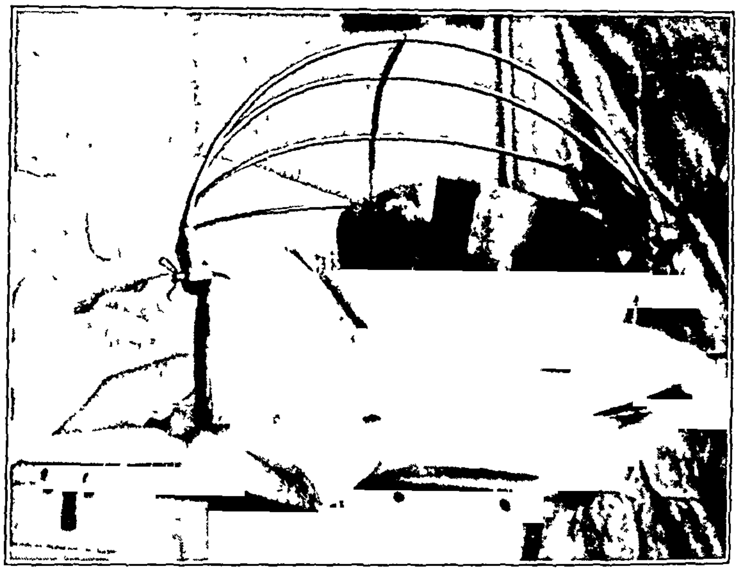

Fig. 3.—Shield placed diagonally across corner of table

I am indebted to Dr. Gatewood for suggestions for the screw device.

V. Mueller & Co., Chicago, are the makers.

Trade Accidents in 1916.—According to Commissioner James M. Lynch of the New York State Industrial Commission, 1916 showed approximately 60,000 industrial accidents in the state, with approximately 1,500 deaths, 120 permanent total disabilities, 6,180 permanent partial disabilities and 52,200 temporary disabilities with a loss of time of more than two weeks. The amount of compensation provided for by the law for these 60,000 cases would be $11,500,000, $5,000,000 of which would be for deaths, $4,500,000 for permanent injuries and over $2,000,000 for temporary injuries. These sums, it is said, do not represent the total economic loss from accidents during the year. The cost of medical benefits, of administering the compensation law, administering insurance and the wage and medical losses of injured employees not covered by the compensation law should be added. It is believed that the total loss would equal $30,000,000. A review of the results accomplished in nine industrial plants in as many different industries shows that a reduction of 10 per cent. in loss from accidents is possible. Of the nine firms, five in two years reduced their accidents 40 per cent., two 50 per cent., and one other firm with a longer experience had reduced the accident rate 75 per cent. in four years.

INACCURACIES IN THE SIZE OF HEMACYTOMETER CHAMBERS AND PIPETS

M. W. Lyon, Jr., M.D., Ph.D., Washington, D. C.
Professor of Bacteriology and Pathology, George Washington University Medical School

The accidental discovery of a hundred per cent. error in the depth of a recently purchased chamber of the Helber type led to an examination of the accuracy of others and to inquiry at the Bureau of Standards as to the accuracy of hemacytometers in general.

The gross error referred to was discovered by an enthusiastic student who used the Helber chamber in making a count of red blood corpuscles. In calculating the number of corpuscles from the data obtained he found twice the number of corpuscles that one of his companions found in the same blood. He repeated the work with a similar result. The conclusion was obvious that the Helber chamber was about 40 microns deep instead of the labeled 20. Probably other counting chambers are on the market or in use as carelessly labeled as is this one.

Before it was learned that the Bureau of Standards was prepared to test hemacytometers, measuring the depth of chambers was attempted by allowing blood or India ink to dry on the ruled disk and on the surrounding plateau and calculating their difference in focus when viewed with a 1/12 objective, a microscope with the fine adjustment graduated to indicate depressions or elevations of a micron being used. The results of this crude method are given in Table 1. Measuring the thickness of the ruled disk and slide on which it is mounted, and then the thickness of the plateau and the slide, and taking their difference with an ordinary micrometer caliper was found to be an equally crude method, owing to the fact that the glass slide on which the ruled disk and plateau are mounted does not have its upper and lower surfaces parallel, and probably these surfaces are not perfect planes.

The method employed by the Bureau of Standards in measuring the depth of chambers is to apply a heavy glass disk of known thickness to the counting chamber and to take the combined thickness of that, the plateau surrounding the ruled disk, and the glass slide on which the plateau and ruled disk are mounted, by means of a micrometer measuring machine, and to use the mean of four readings. The mean of four similar measurements for the thickness of the ruled disk and the mounting slide is then ascertained. The difference between these two means, less that of the glass disk of known thickness, gives the depth of the chamber. This method of measuring them is accurate to less than 1 micron. It is the opinion of Mr. D. R. Miller, of the Bureau of Standards, that makers of hemacytometers can with care make chambers accurate to within 2 microns of the labeled depth. This corresponds to an error of 2 per cent. on the ordinary blood counting chamber, of 1 per cent. on a Fuchs-Rosenthal chamber, and of 10 per cent. on a Helber chamber. From Table 1 it will be seen that only one of the five counting chambers measured for me, representing three standard German makes, comes up to these requirements. An error of 10 per cent. in the case of the Helber chamber could not be considered important if it is used in counting the number of organisms in bacterins. If used for cytologic work, it ought to be more accurate. One and 2 per cent. errors in ordinary blood counting are negligible.

TABLE 1.—LABELED AND ACTUAL DEPTHS OF COUNTING CHAMBERS *

	Helber Counting Chamber Maker M.	Fuchs-Rosenthal Counting Chamber, Maker M.	Thoma Counting Chamber Maker N.	Thoma Counting Chamber Maker O.	Thoma Counting Chamber Maker M.
Labeled depth of chamber........	20	200	100	100	100
Depth of chamber as measured by the Bureau of Standards........	46	203.4	100.2	104.2	104.4
Estimation of depth by noting change in focus of particles dried on the ruled disk and on the plateau	42	186	101	99	97

* The figures are thousands of a millimeter, or microns.

Another possible source of error in the counting chamber is that the square millimeters on it and the 1/400 square millimeters on it are not what they are labeled. I have measured some of them by means of a stage micrometer and micrometer eyepiece, and they were found to be as near their alleged size as that method is capable of measuring. It is practically possible to rule the square millimeters to within 1 micron of accuracy, yielding thus an error of 0.1 per cent. Slight variations in the small squares may be tolerated, provided that, in making counts, diagonal blocks are used, for example, by using the twenty-five small squares in the upper left hand corner, then the block immediately and diagonally to the right and below, then the next similarly placed block of twenty-five small squares finally ending up with the block of twenty-five squares in the lower right hand corner. Any slight variations in the spacing of the lines that make up the small squares is thus compensated for, as squares formed by all the lines are involved.

TABLE 2.—CAPACITY OF DILUTING AND MIXING PIPETS EXPRESSED IN CUBIC CENTIMETERS, AND SHOWING LABELED AND ACTUAL CAPACITY RATIOS AS TESTED BY U. S. BUREAU OF STANDARDS

Manufacturer	Capacity of Interval, C.c.				Nominal Capacity Ratio		
					1:2*	1:10†	1:100‡
	0 to 0.5	0 to 1.0	0 to 11	0 to 101	Actual Capacity Ratio		
A	0.0176	0.0348	0.2376	......	1:1.98	1: 5.8	
A	0.0151	0.0313	0.2643	......	1:2.07	1: 7.4	
A	0.0041	0.0090	......	0.6664	1:2.20	......	1: 73
A	0.0025	0.0052	......	0.5428	1:2.08	......	1:103
B	0.0145	0.0279	0.3019	......	1:1.92	1: 9.8	
B	0.0224	0.0436	0.2699		1:1.95	1: 5.2	
B	0.0021	0.0044	......	0.4585	1:2.10	......	1:103
C	0.0125	0.0255	0.2939	......	1:2.04	1:10.5	
C	0.0020	0.0042	......	0.4519	1:2.10	......	1:106
D	0.0124	0 0248	0.2738	......	1:2.00	1:10.0	
D	0.0106	0.0216	0.2518	......	1:2.04	1:10.6	
D	0.0096	0.0196	0.2222	......	1:2.04	1:10.3	
D	0.0036	0.0071	......	0.8003	1:1.97	......	1:112
D	0.0042	0.0081	......	0.8917	1:2.00	......	1:105
D	0.0040	0.0082	......	0.8353	1:2.05	......	1:101

* Actual capacity ratio calculated from intervals 0.5 and 1.0.
† From 0 to 1, and 1 to 11 [i. e., (0 to 11) minus (0 to 1)].
‡ From 0 to 1, and 1 to 101 [i. e., (0 to 101) minus (0 to 1)].

Attention has been previously called to variations in the calibration of the mixing and diluting pipets.[1] I have never had the accuracy of the pipets under my observations tested. The figures in Table 2, supplied by Mr. H. W. Bearce of the Bureau of Standards, are very significant in this connection. The errors range from 50 per cent. down to none. Only six out of the fifteen pipets listed have an error of less than 5 per cent., and two of less than 2 per cent.; one pipet for making counts of white corpuscles is perfect. The most perfect pipet for making red counts is 1 per cent. wrong. Probably the general run of pipets in use is not more accurate. Mr. Bearce is of the opinion that it is practicably possible to calibrate pipets to have an error not greater than 2 per cent.

An error of tolerance of 2 per cent. in the pipets and of 2 per cent. in the counting chambers, with a practically negligible error of 0.1 per cent. in the size of the square millimeter of the ruled disk gives an instrument with an error of 4 per cent. As shown by Emerson,[2] 4 per cent. represents a reasonable error in blood counting. An instrument designed to give counts within 4 per cent. is almost as near perfection as is the user of the instrument, and ought to be satisfactory, at least for clinical purposes. For the highest degree of accuracy as might be demanded in some scientific investigations, cell counts could be calculated on the basis of the actual size of the instrument. Manufacturers, however, if possible ought at the same time to keep the error within 1 per cent. in the case of the counting chamber and the pipets, as Emerson has shown that experts in blood counting are able to keep their errors within 2 per cent.

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[1] Wood, F. C.: Chemical and Microscopical Diagnosis, Ed. 2, 1909, p. 48.
[2] Emerson, C. P.: Clinical Diagnosis, Ed. 4, 1913, p. 469.

The suggestion is offered that the counting chamber of hemacytometers should be made of one solid piece of glass instead of the usual three cemented pieces. Wood[1] has called attention to variations in the depth of chambers due to changes in temperature affecting the cement. In addition to the name of the maker and other information placed on them, the chambers should be given a serial number, as is frequently done with the pipets. Each chamber could then be furnished with a certificate of accuracy. It is possible to number the chambers as made in the usual manner with the ruled disk and the plateau cemented to a heavy plate. This is actually done with those chambers measured by the Bureau of Standards, but there is always the possibility of the cemented pieces of glass coming off, and there would be nothing to interfere with irresponsible parties cementing them on again or even cementing them on other numbered glass plates.

SUMMARY

Several hemacytometers measured by the Bureau of Standards show gross inaccuracies as to the depth of counting chamber and calibration of pipets.

An error of tolerance not exceeding 2 per cent. in the case of the depth of the counting chamber, and in the calibration of the pipets should be adhered to by the manufacturers. If possible this error should be kept to within 1 per cent. in each case. An error of tolerance not exceeding 0.1 per cent. should be allowed for the size of the square millimeters of the chambers.

It would be desirable to have the counting chambers made of a solid piece of glass.

Each hemacytometer should be furnished with a certificate as to its accuracy or as to its errors.

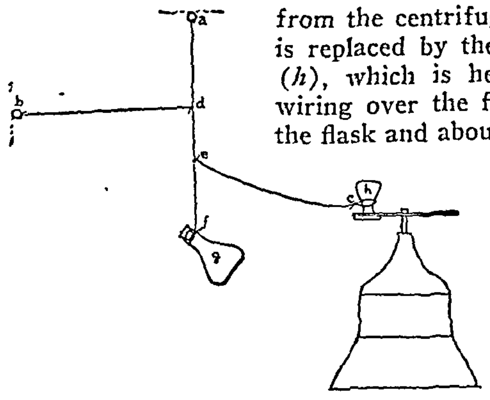
The Bureau of Standards, Washington, D. C., is prepared to test the accuracy of hemacytometers for a nominal fee.

AN IMPROVIZED SHAKING MACHINE

R. M. LeComte, M.D., Washington, D. C.

Pathologist, Washington Asylum Hospital

The essential parts of this contrivance are an electric centrifuge, some heavy twine and two flasks, one of about 50 c.c. capacity and the other large enough to carry the material to be shaken. The shells are removed from the centrifuge arms, one of which is replaced by the inverted 50 c.c. flask (*h*), which is held firmly in place by wiring over the flange at the mouth of the flask and about a thin piece of wood, cut to a suitable size and placed on the under side of the centrifuge arm. The shaking flask, *g*, is suspended by twine from a ring at *a*, the knot about the neck of the flask at *f* being a slip-knot to allow changing the flask without disturbing the whole apparatus. A cord is tied firmly to the cord *af* at *e*, and fastened loosely about the neck of the flask *h* at *c* so that the flask can revolve in the grasp of the knot. This cord, *ec*, is of such length as to reach from the point *e* to the shaft of the centrifuge. The centrifuge is then run at moderate speed. A third cord, *bd*, may be tied at the points indicated in the diagram to control the extent of the motion of the shaking flask, *g*. If a spiral spring is inserted between the points *a* and *f*, an additional vertical motion is obtained.

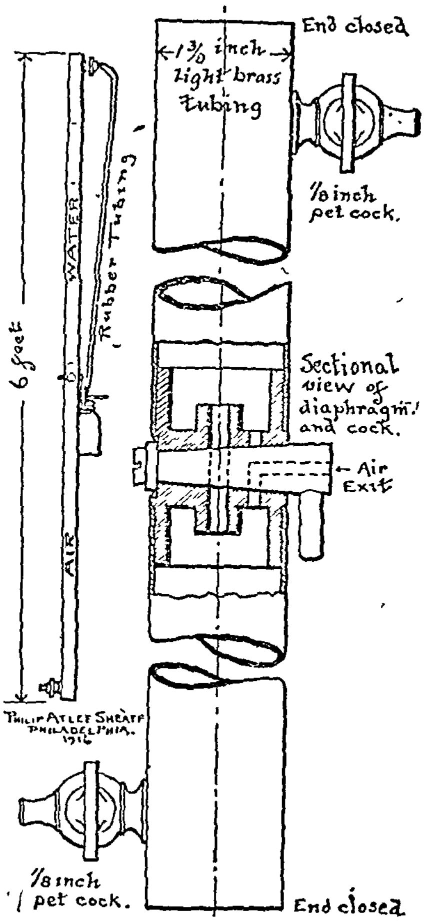


1424 K Street N.W.

IMPROVED ASPIRATING APPARATUS

Philip Atlee Sheaff, M.D., Philadelphia

In The Journal, Sept. 16, 1916, I described an aspirating apparatus for office and hospital use in obtaining gastric contents, and, Dec. 2, 1916, Dr. Harvey G. Beck of Baltimore described an apparatus designed for the use of partial vacuum in diagnosis and treatment.


End closed
1⅜ inch light brass tubing
⅛ inch pet cock.
6 feet
WATER
Rubber Tubing
AIR
Sectional view of diaphragm and cock.
Air Exit
Philip Atlee Sheaff Philadelphia. 1916
⅛ inch pet cock.
End closed

Improved apparatus for aspirating gastric contents.

Both of these devices supply a needed want, but are restricted in their usefulness by the fact that Beck's requires a faucet and running water, and mine is a permanent fixture in proximity to the wash-stand.

I have so modified my apparatus that it is portable, self-contained, always ready for use, and lends itself to various uses in diagnosis and treatment in which a partial vacuum is desirable, and in principle might be spoken of as a "hydrostatic hour-glass." It is brass throughout and consists of a piece of 1⅜ inch light brass tubing closed at each end, near which is a ⅛ inch pet-cock. A diaphragm containing a cock divides the cylinder into two compartments of equal capacity. The upper half is filled with water, the lower half with air. In operation the tube is placed in the vertical position, a rubber tube connects the upper pet-cock with the aspirating bottle (which for convenience is held to the tube by a clip) as shown in the sketch, a cupping glass, or other container for blood or fluid, the pet-cock is opened, and the diaphragm cock turned with its handle down.

This allows the water in the upper chamber to pass into the lower chamber, thus displacing its contained air, as shown in the sketch, and with a tube of the length shown, generating a negative pressure of 65 mm. of mercury in the aspirating bottle. After the operation is over, any remaining water in the upper chamber is allowed to flow into the lower chamber and all cocks are closed, when the apparatus is instantly ready for use again by turning it upside down and repeating the manipulation after connecting the tubing of the aspirating bottle to the upper pet-cock.

No water is lost, the device is simple, and while somewhat long, can be carried easily; it does not take up much space when not in use, as it can stand in a corner; is easily maintained in the upright position by throwing a bandage around it and the back of a chair; has no valves to get out of order; requires no wash-stand and running water, and the three cocks which it contains need no more attention than an ordinary gas fixture.

4006 Baring Street.

Judgment in Health Expenditures.—To spend the resources of the department on other peoples' pet projects, on things which, even though desirable, are not in given circumstances essential, is to tithe mint, anise and cummin and neglect the weightier matters of the law. These weightier matters are the activities which experience has shown to be fruitful of real results. They follow paths clearly marked, toward a definite goal—the health of the state.—Alice Hamilton, *Survey*, Jan. 20, 1917.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 635)

TREATMENT OF ACUTE NEPHRITIS

The treatment of acute nephritis requires immediate bed rest in a warm, but properly ventilated, room.

During all acute diseases the urine should be frequently examined, and especially in diseases and conditions known frequently to result in nephritis, such as scarlet fever, erysipelas, serious burns, and poisoning, in order that the first indication of kidney inflammation may be noted. In these diseases all irritant foods should be prohibited, and all drugs which may cause irritation should be withheld, such as phenol compounds, synthetic drugs, irritant diuretics, aromatics, coffee, tea and alcohol. Observation of these cautions may prevent many kidney complications.

Cold applications should be used with great care; warm sponging is often as efficient as cold sponging in feverish processes. Whatever measures are taken in the treatment of the patient, chilling of the body should be avoided, although he should have fresh, cool air to breathe.

Baths should be taken in warm or hot water, as anything which promotes normal perspiration tends to relieve congestion of the kidneys; anything which tends to inhibit the secretions of the skin or to cause the skin to become cold and dry increases the congestion of the kidneys.

Meat proteins should be especially avoided as soon as traces of albumin are found in the urine, and the diet should become more and more rigid, according to the extent of the inflammation. The proper diet in acute nephritis is milk, or foods of the same character. If milk is not well tolerated, thin gruels, as oatmeal or malted milk, cereal milk, etc., may be substituted. Barley water is a good beverage and has some nutritive properties. Salt should be almost entirely removed from the diet. Nephritis patients usually suffer greatly from thirst. The amount of water advisable varies with the condition. Theoretically we should allow a considerable quantity, to wash out, if possible, the plugged-up tubules of the kidneys. Practically, however, if edema is extensive, much water should be avoided, although, if the circulation is efficient, pure water in a salt-free diet perhaps does not tend greatly to increase the edema. A refreshing drink may be prepared from a teaspoonful of cream of tartar in a pint of boiling water to which is added the juice of a small lemon, and a little sugar if desired. This beverage, when cold, is very agreeable.

If the patient's stomach is disturbed, a short starvation period is advisable. It is not expedient to continue this treatment long, however, as it tends to acidemia, which would add its quota to the toxins already more or less present. Liberal quantities of hot water may be given to relieve the vomiting, and if this is not sufficient, several 1 gm. doses of bismuth subcarbonate and sodium bicarbonate should be given every three hours until the nausea and vomiting cease.

The indications to meet are:

1. To promote elimination during the time the kidneys are insufficient.
2. To keep the waste metabolism and the metabolism of protein foods at the lowest limit possible.
3. To allay the inflammation, if possible, and to hasten the stage of resolution.
4. To prevent uremia if possible.

1. To meet the first indication the body should be kept very warm, and hot sponge baths should be given. Profuse sweatings are not indicated, except such as may be caused by hot drinks and warm applications to the region of the kidneys.

Unless contraindicated by some previous condition, an active cathartic should be given — a few grains of calomel, a saline purgative, or castor oil — to remove from the intestinal canal all substances which tend to the production of toxins which may be absorbed into the blood and increase the toxemia. If the patient is a child, rhubarb or cascara sagrada may be used. Daily movements of the bowels are necessary, but more than two or three loose movements a day are not indicated, and if the heart is weak, this amount of catharsis is often contraindicated. Enemas for purgation may be substituted for cathartics.

Diuretics should not be given, with the exception of pure water, or possibly a water containing some simple alkali, such as potassium or sodium citrate, or acid fruits which burn to alkali, such as oranges and lemons. The juice of these fruits is acceptable and beneficial to the patient.

2. To meet the second indication, the patient should be kept physically and mentally at rest. The more restless the patient, or the more muscle movements he makes, the more products of muscle metabolism reach the blood and must be excreted. Minimum quantities of all foods, particularly those containing protein, should be consumed, so that the kidneys may have the least possible amount of waste products to care for.

If the patient vomits, for a short time all foods should be withheld. The stomach may be washed out with hot water, or the patient may be given small doses of bismuth subcarbonate and sodium bicarbonate. However, starvation should not be too long continued, as it tends toward the production of acidosis and symptoms similar to uremia; therefore, bland, starchy foods should be given as soon as possible. If the stomach cannot retain them, alkalies, such as sodium bicarbonate or sodium citrate, in weak solutions, should be introduced into the colon.

If during the period of active nephritis the patient is restless and cannot sleep, it may be advisable to give a dose or two of chloral or of bromid, but synthetic drugs, or coal-tar products, or anything that forms hematoporphyrin during its elimination through the kidneys, such as sulphonal, trional, and drugs of that type, should be avoided.

3. The third indication is met by warm applications to the lumbar region, moist warmth in this region being of special benefit to acutely congested kidneys. Hot alcohol and water fomentations bound close to the back by a bandage around the abdomen, kept warm by a hot water bag, and changed as soon as cool, afford a simple method of applying such heat. The old-fashioned flaxseed poultice is also beneficial. Later the moist heat may be changed to the dry heat of an electric pad, which also brings about local hyperemia and in a reflex way gives relief to the kidneys. When the patient is kept warm, fomentations like those mentioned above cause perspiration, although not the profuse perspiration of the Turkish bath, caused by steaming, or by the introduction of dry hot air under the bedclothes. Such profuse sweatings are rarely necessary, and it is a question whether the good they have apparently accomplished was not due to relief of the kidney congestion. Profuse sweating can do little more than

eliminate from the blood large amounts of water, and the toxins retained in the blood in nephritis and in uremic conditions consequently become more concentrated. On the other hand, profuse perspiration sometimes causes the blood to absorb water from edematous tissues, which will counteract the concentration of the poison in the blood caused by the perspiration. If prostrating perspiration is caused by these applications, it is best to stop them and rely on the more modified heat of an electric pad.

This treatment, if successful, finally brings about an increase in the amount of urine passed, then the amount of blood in the urine is diminished, less albumin appears, although the urine may be loaded with casts, the edema and dropsy disappear, and the patient becomes convalescent, although edema may persist for weeks and albumin may not disappear from the urine for weeks or months. However, in kidneys that were normal before the attack of acute nephritis, the albumin and casts generally disappear in five or six weeks.

During this convalescent period the diet is gradually increased, although meat proteins and nuclein foods are still forbidden. In other words, if the edema has disappeared the patient is allowed bread, rice, more liberal amounts of cereals, and potatoes, but less milk. The amount of salt allowed him is gradually increased.

During this long period of abstinence from meat it is advisable to give small doses of iron, such as 5 drops of tincture of ferric chlorid, three times a day, in orangeade or lemonade; and after the albumin has disappeared from the urine, or after two months, although the albumin may not have disappeared, small amounts of meat once a day may be allowed, as a very long period of meatless diet is often not advisable in these cases. Eggs, simple vegetables and fruit should be added to the diet even before the albumin has disappeared; and when meat is allowed (meat includes fish, chicken and fowl) all beef extracts, beef broths and beef stock soups should be prohibited.

During this convalescent stage the patient may begin to sit up, walk around the room, and gradually about the house, but should not be exposed to cold, or allowed to attempt more than moderate muscular efforts. His bowels should move daily, and, if a drug is needed, aloin or cascara should be used. Children may be given milk of magnesia or some other simple laxative. It should be emphasized that a modification in diet is necessary according to the character of the digestion and the condition of the tongue. A liberal consumption of milk is often not well tolerated by adults, but a little careful investigation will determine the diet best adapted to the individual patient.

If the albumin and casts entirely disappear from the urine in six or eight weeks, the patient may be considered cured. However, severe exercise and chilling should be guarded against, lest the injured kidneys again be impaired.

If the albumin and casts continue, or if the twenty-four hour urine shows continued diminished excretion of salts or solids, although the blood may not show retained nonprotein nitrogen, the treatment of the case becomes that of a chronic nephritis.

Gentle massage may be employed as soon as the kidneys are functioning well, but it should not be resorted to if the secretion of the kidneys is insufficient. The amount of exercise the patient may take depends entirely on the efficiency of the kidneys in throwing off the waste material; if there is still danger of nitrogen retention, exercise should be limited. Warm baths and the milder hydrotherapeutic measures (no cold water and no chilling) are of advantage in keeping the skin in a healthy condition and in causing a good circulation of the blood on the surface of the body.

The prognosis of acute nephritis depends on its cause, but a case never should be considered hopeless. The patient may die, but with proper treatment he may recover, even from severe uremia, convulsions and coma. In acute nephritis there is no stage in which every effort possible should not be made to combat the disease and aid recovery.

A scarlatinal nephritis is more serious than that caused by many other conditions, and is apt to be insidious in development, occurring not only days, but weeks after the acute scarlatinal symptoms have subsided. Uremia may not develop even with temporary suppression of the urine; on the other hand, it may develop almost without premonitory symptoms, although ordinarily these symptoms appear hours or days before uremia occurs.

If the kidney secretion contains a great deal of blood, gelatin and lime water may be prescribed. Gallic acid at times apparently diminishes the loss of blood and albumin by the kidneys. If the blood pressure is low and the heart weak, congestion of the kidneys may be due to passive congestion, which may be alleviated by the administration of digitalis. Its action should be watched, as in impaired kidneys it may seriously overact, causing vomiting, headache, too high tension, and sometimes symptoms of uremia. On the other hand, it may be the drug required to relieve some of the congestion and to stop the bleeding. This type of acute nephritis, almost a passive congestion nephritis, not infrequently occurs in cardiac lesions, especially in valvular defects.

If the blood pressure is not very high, suprarenal gland extracts may be of value in stopping the loss of blood by the kidneys, especially in children. A crushed tablet, swallowed with water, every six hours for two or three days is a fair dose.

If the blood pressure is very high, nitroglycerin may be given in doses sufficient to reduce it somewhat; $\frac{1}{100}$ grain given once in three hours to an adult seldom fails to have this desired effect. If the hypertension in an adult is menacing, venesection may be employed; this may also be indicated if severe uremic symptoms, convulsions or coma are in evidence.

As several times stated, diuretics, as such, are generally contraindicated throughout the course of acute nephritis; even in the convalescent stage, if used at all, only the simplest diuretics should be administered with the greatest caution.

If the circulation is poor during convalescence, the amount of urine being insufficient, for this reason alone, and if digitalis is deemed inadvisable or inefficient, caffein in some form is the drug to be preferred, perhaps one of the best forms being theobromin and sodium salicylate, in doses of from 0.5 to 1 gm., in plenty of water. If the patient has reached the stage in which it is advisable to give caffein, there is no reason why a cup of coffee should not be given in the morning, or in the morning and at noon.

Throughout the course of acute nephritis, if the patient is comfortable he will probably sleep well. However, if he is nervous and irritable and cannot sleep, sleep must be induced in order that he may have the bodily and mental rest required. Synthetic hypnotics should rarely be administered, unless the dose is small, such as 0.2 gm. of veronal-sodium, or 0.05 gm. of luminal, since most synthetic drugs irritate the kidneys during excretion. If the patient is irritable, nervous and excited and the circulation is good, an adequate dose of chloral, 0.5 gm. perhaps, or 1 or 2 gm. of sodium bromid, may be used as a hypnotic, provided such strong drugs are deemed advisable.

Opium or any of its alkaloids are generally to be avoided in acute nephritis. However, if pain is acute it may be given, as acute pain can do more harm through circulatory shock, mental anguish and muscle restlessness than can possibly be done by a proper dose of morphin or codein.

If acute nephritis develops in the course of some severe infection, the treatment necessary to combat that infection should be given, modified in the manner suggested by the condition of the kidneys. All vaccine injections would probably be contraindicated.

As soon as the patient is convalescent, warm baths should be taken regularly, to keep the skin in perfect health and to relieve internal congestions. When convalescence is well established, if it is during the cold season of the year, the patient should, if possible, go to a warmer climate, and remain there until the kidneys have again resumed their normal activities.

4. The fourth indication, namely, the prevention of uremia, has frequently been met by proper management of the other indications. The treatment of this condition will be outlined later.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

TABLETS SODIUM CHLORIDE AND CITRATE-SQUIBB (DR. MARTIN H. FISCHER).—Each Tablet contains sodium chloride 1 Gm. and sodium citrate 2 Gm.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)
Prepared by E. R. Squibb and Sons, New York.

OPTOCHIN.—Ethyl-hydrocupreine. — Optochin (Base).— $C_{19}H_{22}N_2.OH.O.C_2H_5$.—A synthetic derivative of cupreine, $C_{19}H_{22}O_2N_2$, an alkaloid occurring together with quinine in the bark of *Remijia pedunculata*. Ethyl-hydrocupreine is closely related to quinine, differing from the latter in containing two more hydrogen atoms and an ethoxy in place of a methoxy group.

Actions and Uses.—Ethyl-hydrocupreine has the antimalarial and anesthetic action of quinine. Toxic symptoms, however, such as tympanitis, deafness, amblyopia or amaurosis (retinitis) are more liable to occur than with quinine; while these are generally transient, retinitis may result in permanent impairment of vision (in one case amaurosis resulted from the administration of two 0.25 Gm. doses). This demands caution in the use of the drug. Ethyl-hydrocupreine has a specific bactericidal effect on the pneumococcus in vitro, and it exerts a protective and curative action in animals experimentally infected with virulent strains of pneumococci. Clinical investigation indicates that the drug may be of value in the treatment of lobar pneumonia when the proper dosage is determined. (Owing to the toxicity of the drug, it seems that the amount which can safely be administered to man is limited. For adult males, 1.5 gm. by mouth in twenty-four hours, divided into at least three doses, may be considered safe, but even in this dosage slight toxic effects have been seen. The drug may be given intramuscularly, but it is liable to be irritant. Intravenous administration seems contraindicated.)

While the internal use of ethyl-hydrocupreine is in the experimental stage and the danger of visual disturbance (amaurosis) makes caution in its use important, reports indicate that the drug is of decided value in the treatment of pneumococcic infection of the eye (ulcus corneae serpens). It is too soon to give a definite opinion as to the actual value of the drug in curing pneumonia.

Dosage.—For ophthalmic use a freshly prepared 1 to 2 per cent. ointment or solution in a bland fatty oil.

Manufactured by Vereinigte Chininfabriken, Zimmer and Co., Frankfort a. M., Germany (Merck and Co., New York). U. S. patent No. 1,062,203 (May 20, 1913; expires 1930). U. S. trademark No. 99,822.

Optochin is a white or faintly yellowish, amorphous, odorless powder having a bitter taste.

Optochin is nearly insoluble in water; easily soluble in alcohol, ether and chloroform; easily soluble in dilute acids; very slightly soluble in petroleum ether.

If about 0.1 Gm. of optochin be dissolved in 20 Cc. of water by the aid of a few drops of diluted sulphuric acid, 1 Cc. of bromine water added and the solution made alkaline with ammonia water, a green color should be produced.

If about 0.5 Gm. of optochin be dissolved in 10 Cc. of water by means of a few drops of diluted sulphuric acid, the solution made alkaline with sodium hydroxide solution and the mixture boiled, no odor of ammonia should be produced.

If 0.1 Gm. of optochin be dissolved in 20 Cc. of water by the aid of a few drops of diluted sulphuric acid, a blue, fluorescent solution should be produced; if 0.3 Cc. of tenth-normal potassium permanganate be added to this solution the violet color should persist for at least one minute (*quinine and some other impurities*).

If 0.01 Gm. of optochin be dissolved in 0.2 Cc. of strong sulphuric acid, not more than a slightly greenish-yellow color should be produced (*readily carbonizable organic impurities*).

If from 0.5 to 0.8 Gm. of optochin be weighed and incinerated, not more than 0.1 per cent. of residue should remain.

OPTOCHIN HYDROCHLORIDE.— Ethyl-hydrocupreine hydrochloride.—$C_{19}H_{22}N_2.OH.O.C_2H_5.HCl$.—The hydrochloride of ethyl-hydrocupreine.

Actions and Uses.—The same as those of optochin, which see.

Dosage.—For application to the eye and instillation into the conjunctival sac a freshly prepared 1 to 2 per cent. solution is used.

Manufactured by Vereinigte Chininfabriken, Zimmer and Co., Frankfort a. M., Germany (Merck and Co., New York). U. S. patent No. 1,062,203 (May 20, 1913; expires 1930). U. S. trademark No. 99,822.

Optochin hydrochloride is a white, or faintly yellowish-white, crystalline, odorless powder having a very bitter taste.

Optochin hydrochloride is soluble in two parts of warm water forming a neutral or faintly alkaline solution; soluble in five parts of alcohol; very soluble in chloroform; almost insoluble in ether or petroleum ether.

If to 5 Cc. of the aqueous solution of optochin hydrochloride (1:10) 1 Cc. of silver nitrate solution be added, a white, curdy precipitate should be produced which is insoluble in nitric acid.

If to 5 Cc. of the aqueous solution of optochin hydrochloride (1:10) an excess of sodium hydroxide solution be added, a white, curdy precipitate should be produced (distinction from *cuprein*, which is soluble in an excess of sodium hydroxide).

If 0.1 Gm. of optochin hydrochloride be dissolved in 20 Cc. of water and 0.3 Cc. of tenth-normal potassium permanganate be added, the violet color should persist for at least one minute (*quinine salts and some other impurities*).

If 0.1 Gm. of optochin hydrochloride be dissolved in 0.2 Cc. of sulphuric acid not more than a slightly greenish-yellow color should be produced (*readily carbonizable organic impurities*).

If from 0.5 to 0.8 Gm. of optochin hydrochloride be weighed, the salt dissolved in 20 Cc. of water, the solution made slightly alkaline with ammonia water, the mixture shaken successively with 15, 10 and 5 Cc. of chloroform, the fractions of solvent united, allowed to evaporate spontaneously, the residue treated with 2 Cc. of absolute alcohol, the solution evaporated, the residue dried to constant weight at 100 C. and weighed, the weight of the residue (ethyl-hydrocupreine) should correspond to not less than 90 per cent. of the weight of material taken.

Cuts of Meat and Calorific Value.—The kind or cut of meat used does not usually make much difference in the fuel or calorific value. There is a popular belief that porterhouse steak and other choice cuts of beef represent the highest form of nourishment to be obtained. This is, however, a misconception; the fuel value of brisket or ribs of beef as well as mutton and lamb all exceed the much desired tenderloin steak. According to Langworthy, expert in charge of nutrition investigations of the U. S. Department of Agriculture, "for all practical, every day purposes it may be considered that the protein obtained from a given weight of meat differs very little either with the kind of meat or the cut."—*Weekly Bull. Dept. of Health*, Newark, N. J.

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SATURDAY, MARCH 3, 1917

THE NATURAL IMPERFECTIONS OF THE BODY AND THE LIMITATIONS OF SCIENCE

It is not uncommon to find persons who are confronted with some problem pertaining to the needs of the body making references to "nature," or human instincts, or physiologic habits in explanation of the mysteries of our living organism. The author of one of the once familiar Bridgewater treatises, in which the discoveries of science were considered with reference to "natural theology," wisely remarked that "man not only sees means directed to certain ends; but ends accomplished by means, which he is totally unable to understand. He also sees, everywhere, things, the nature, and the end of which are utterly beyond his comprehension; and respecting which, he is obliged to content himself with simply inferring the existence of design."[1]

Are we bound, in contemplation of this situation, to conclude that whatever nature provides is perfect in construction and function? The human body needs not to be conceived as a haphazard product of chance evolution; on the other hand it is not necessarily a disparagement for even the most devout person to realize that "nature" is often far from perfect. Richard C. Cabot[2] has recently expressed this trenchantly by saying:

> We do not expect that our souls will be perfect. Our bodies are a part of nature and need not be assumed to be perfect. Presumably bodies and souls have a certain amount of freedom whereby they can go wrong. I see the body, like a great deal of the rest of nature, heroically trying to do right, often with extraordinary success, sometimes with pitiful failure; and I find this in no way irreconcilable with a belief in God. But I should find it impossible if I did not recognize that element of freedom to go wrong which I think is present in the whole of nature, and which I think makes nature sometimes beautiful, sometimes cruel, sometimes badly contrived, and sometimes marvelously ingenious.

Nor is instinct such an unerring guide that it can be trusted to direct us inevitably into the safest channel of physiologic behavior, as is often urged, particularly in respect to diet. What is interpreted as instinct is sometimes merely an expression of custom, habit or usage. We are told that a man is a creature of habits; he is quick to acquire new ones when his environment affords the opportunity, and he is prone to cling to the old ones when they minister to his sense of taste. Habits and cravings are far from being reliable indexes of physiologic requirements. Because man has maintained himself through the ages without precisely such scientific guidance as is available today it does not follow, as some are wont to state, that "scientific discoveries in the field of dietetics are academic rather than practical." Dr. Percy G. Stiles[3] has admirably spoken the words of wisdom:

> A judicial mind will mold to a middle course. There need be no discouragement because the requirements are so many; on the other hand, it is not the part of wisdom to discount all that has come from the chemist's patient labor. Even though mankind has survived, we can conceive that human standards may be bettered. If this is true of the race, it is much more conspicuously true of ill nourished individuals. We must consider in what respects the conditions of modern life have modified habits of diet, and whether, in any instances, the changes have been for the worse. The case is paralleled by that of the man who begins to consider the possibilities of disease. There are so many maladies to be thought of that the retention of health seems like keeping one's balance on a tight rope. Yet, if the preservation of health is really a tight rope performance, there is a factor which gives constant support, the remarkable stability of health in the normal subject—his constitution—which is like a gyroscope in its steadying effect. Here, too, it is rational not to ignore the dangers, but at the same time to recognize our relative security.

Let us break away from the assumption that there is anything incongruous in the fact that nature as expressed in the human organism is far from perfect; or that the incompleteness of the information of the present deprives it of any value for the improvement of a tolerably well conducted human mechanism. There is no absolute truth knowable to the human mind.

BETTER PUBLIC HEALTH ADMINISTRATION FOR SMALL COMMUNITIES

It is quite generally conceded that the public health is more carefully safeguarded in metropolitan districts than in small cities, villages and rural communities. As a result we frequently find a higher incidence of contagious diseases, and especially of typhoid fever, in the small villages and on the farm than in the congested districts of large cities. It has been shown also that the health of schoolchildren in cities as a rule is better than that of the children in rural districts. In most rural districts and small cities and villages little or no provision is made for public health work, whereas in most large cities fairly adequate annual appropriations are made for this purpose. Many dwellers in small cities and villages are beginning to realize the failures in this direction. The chief difficulty heretofore has been to find a way to finance an efficient health department for such communities. It is evident that a city of from 2,000 to 3,000 inhabitants hardly would see its way clear to hire a full-time health officer, a school nurse, and a dairy and milk inspector. A small community could hardly make use of all the time of a health officer and school nurse, and hence there would seem to be needless extravagance. This difficulty has recently been overcome by two successful experiments in cooperation of neighboring small cities (at Wellesley, Framingham, Needham and Melrose, Mass., and LaSalle, Peru and Oglesby, Ill.,) whereby it is made possible jointly to support a full-time health officer and assistants and to make proper use of their whole time.

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[1] Prout, W.: Chemistry, Meteorology, and the Function of Digestion, 1834, p. 24.

[2] Cabot, R. C.: A Layman's Handbook of Medicine, 1916, p. 1.

[3] Stiles, P. G.: An Adequate Diet, Harvard University Press, 1916.

The second annual report of the Hygienic Institute, the Department of Health for LaSalle, Peru and Oglesby, Ill., which has just appeared, shows what can be done by cooperative effort. Prior to the establishment of the cooperative health department, these three cities had no more in the way of machinery for proper health administration than most other cities ranging in population from 5,000 to 12,000 inhabitants. Each had a part-time health officer, two of whom received $25 a month and one $35. With such meager salaries not much service could be expected, and no attention was paid to milk and dairy inspection, medical inspection of schoolchildren, epidemiologic investigation or collection of vital statistics. Epidemics of smallpox, diphtheria and scarlet fever were of frequent occurrence, and in many instances the patients were not isolated, but could be seen walking the streets if not too ill to be confined to their beds. Diphtheria patients were practically always released as soon as the membrane disappeared, often in less than one week from the time of onset, and scarlet fever patients were quarantined only from two to three weeks, according to the severity of the case. With the advent of the cooperative health department, these conditions were radically changed. Diphtheria patients are now quarantined until two negative cultures from the throat and nose are obtained on two consecutive days, and scarlet fever patients are quarantined for a minimum of five weeks. A milk inspection ordinance was passed and dairies and milk supplies are being systematically inspected and scored. Nearly all of the milk is now delivered in steam sterilized bottles and over half of it is pasteurized, whereas prior to the establishment of the cooperative health department most of the milk was dipped from cans on wagons and was not pasteurized. All dairy cows have been tuberculin-tested, and all reactors have been disposed of from those herds whose yield is not pasteurized. All grocery stores, meat markets and restaurants are being inspected and scored, and a vigorous campaign has been instituted against the insanitary outdoor privy. A medical school inspector and two school nurses have been employed, and close watch is kept over the schoolchildren lest any may come to school while suffering from a contagious malady. Physical examinations are made of all schoolchildren both in the parochial and the public schools once every two years, and all defects found are recorded on a proper card. All serious defects which might be a handicap to the child are reported to the parents with the suggestion that the child be taken to the family physician or dentist for proper treatment. All cases are followed up by the school nurses, and in many instances in which the parents are unable to provide proper treatment, free treatment has been obtained through charity. A free dental clinic has been established at which all schoolchildren whose parents cannot afford to pay for the services of a dentist receive dental care free of charge. An infant welfare nurse devotes all of her time to the care of infants and of mothers and prospective mothers, and one nurse devotes half her time to antituberculosis work.

The results of these measures are just beginning to be noticeable. During the first year there were forty-seven deaths from diphtheria and scarlet fever, whereas during the second year there were only sixteen deaths from these two diseases. During the first nine months of the third year, up to Feb. 1, 1917, there have been but nine deaths from diphtheria and scarlet fever. The total death rate for the entire district was 15 per thousand during the year ending April 30, 1915, and 13.9 per thousand during the year ending April 30, 1916.

The total expense of the department, which serves approximately 30,000 people, has been $16,350 a year — certainly a profitable investment.

THE VENEREAL DISEASE PROBLEM—V

The Problem in Germany

Interest in the problems of the venereal diseases in Germany has been stimulated by the war, and efforts to control these diseases have redoubled. Venereal diseases among soldiers have increased greatly since the war began, and there has been the usual necessity of war time of combating in every way possible the great amount of disability among soldiers which the venereal diseases cause. The increased efforts for the control of the diseases have been extended not only to the part of the population which is in military service, but also to the civilians both in the military districts and elsewhere. The German efforts have taken two directions: first, the Continental course of regulating prostitution and rendering it as little dangerous as possible, and, second, efforts to combat the venereal diseases directly.

In military districts the most stringent regulation of prostitution has been effected, and outside of the military districts measures for the control of prostitution have been more rigorously enforced. Among German authorities, such as Neisser and Blaschko, there has been marked difference of opinion as to the sanitary value of regulation and examination of prostitutes. These measures are admitted by their advocates to be of only relatively small usefulness — certainly not of sufficient value to rekindle any hope of great benefits from them. German experts give the regulation of prostitution an entirely minor — if not, indeed, a negligible place — among the measures for fighting the venereal diseases.

In Germany, as elsewhere, great stress is being placed on diagnosis and treatment for combating these diseases. The insurance companies, under which so large a proportion of Germany's industrial population are cared for, are furnishing general facilities for treatment of these diseases along the same lines that are being followed elsewhere. Government measures for providing universal opportunities are in process of establishment. These provisions look to the universal care of the venereal diseases — by the state without cost for the poor, or by insurance companies, or at the expense of the individual in case of the prosperous. The general plans are similar to those which have been followed in England.[1] It is recognized that the weak point in this plan of treatment outside of the armies in Germany is the lack of authority to compel patients to continue treatment until they are freed from infectious dangers to others.

The recommendations for combating venereal diseases of a committee appointed to study this question by the Medical Association of Munich were recently reviewed in The Journal.[2] This committee presented a report which proposes to remedy the failure of patients to pursue treatment by requiring compulsory treatment as long as there is need for it. The recommendations of the Munich committee closely conform to the regulations which have recently been put in force in Western Australia. They recommend compulsory treatment along the lines of the Australian act.[3] Patients must seek treatment immediately on the appearance of venereal disease. Suspects may be examined by boards of health and compelled to take treatment. Checks are provided so that patients who fail voluntarily to continue treatment will be compelled to do so, and, as in the Australian act, heavy penalties are provided for the failure of patients or physicians to live up to their responsibility under the plan. The recommendations of the Munich committee go still farther, and urge stringent measures for complete notification of the venereal diseases; but they recommend that the records of such notifications be provided with all possible safeguards of secrecy. The recommendations of this committee go much farther than the general sentiment of the German profession. German medical authorities are agreed on the value of providing opportunities for treatment, and appreciate the need for measures to compel continuance of treatment; but apparently there is wide difference of opinion as to the desirability and practicability of notification of the venereal diseases.

The German efforts differ from others we have considered in placing important emphasis on the value as a sanitary measure of the personal prophylaxis of syphilis. Every effort is made to see that personal prophylaxis is carried out in the armies, and it is also being utilized among the civilian population. Where previously the condom was under legal ban as a means of preventing conception, its use to prevent venereal infection is widely and frankly advocated. Calomel ointment and other medicinal preparations for preventing infection are being distributed to soldiers and the public, and leaflets are being furnished which describe the methods of use of these devices. Neisser took the position before the Deutsche Gesellschaft für Bekämpfung der Geschlechtskrankheiten at its meeting in 1915 that measures of personal prophylaxis were of essential importance in the fight against the venereal diseases.

Much anxiety is being shown in Germany concerning the danger of the spread of the venereal diseases by soldiers after their discharge, and vigorous methods are proposed for combating this danger. Neisser and others have urged that every soldier, officers included, should at the end of the war be given a Wassermann test, and an equally comprehensive plan is suggested for detecting gonorrhea among soldiers before their discharge. Blaschko's proposals, though less extreme, represent the last degree of radicalism when compared with anything of this sort that has ever been done before. He proposes, before discharge, examination of men who have suffered during enlistment from venereal diseases; retention under military control of men with active cases until a cure is effected; transference to the insurance companies for observation, and, if necessity should arise, for treatment, of men who have had venereal diseases during the war, but in whom the disease is no longer active. Many have urged the continuance of the severe restrictive measures which have been instituted and proved valuable under military rule, such as severe penalties for intercourse when persons are infected with venereal disease, and the suppression of quackery. There is the same insistence on the continuance of the thorough military measures for diagnosis and treatment.

Germany has thus become active in efforts at controlling the venereal diseases. She is placing her reliance chiefly on the efficacy of universal provisions for diagnosis and treatment, but is going farther than Anglo-Saxon countries in promoting measures of personal prophylaxis. Drastic measures, which pay no attention to the inclination of the individual, have been carried out among soldiers and in military districts, and there is a call for extension of such measures to the civilian population after the war; but there is evidently difference of opinion among German authorities as to whether such measures will be practicable even among the disciplined citizens of Germany after the stress of war has passed.

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[1] The Venereal Disease *Problem*, III, The English Venereal Disease Act, editorial, The Journal A. M. A., Feb. 17, 1917, p. 550.

[2] Combating Venereal Diseases, Social Medicine, Medical Economics and Miscellany, The Journal A. M. A., *Jan.* 27, 1917, p. 306.

[3] The Venereal Disease Problem, IV, Western Australia's Effort to Control the Venereal Diseases, editorial, The Journal A. M. A., Feb. 24, 1917, p. 639.

THE POLLUTION OF STREAMS AND ITS INTERSTATE CONTROL

The obvious difficulties which stand in the way of preventing excessive stream pollution in all thickly settled parts of the world are in some respects peculiarly great in the United States. The volume of water in the large rivers, the rapid growth of population in certain centers, and the extension of water supply and sewerage facilities are factors which explain in part the situation now facing us. For a time the size of American streams made such pollution as existed a matter of apparent insignificance except so far as water supply was concerned. But the amazingly rapid growth of population and manufacturing, combined with the popularity of the American bath room and water closet, has brought into existence an enormous quantity of putrescible fluid that is most easily got rid of by discharge into the nearest body of water, lake, river or sea.

One result of the natural attempt to dispose of sewage by dilution has been the overloading of many streams, large and small. The suddenness with which this has occurred and the glaring evils which have been produced have led almost to a panic in some quarters. It has even been demanded that all sewage be kept out of all water courses or, if admitted, that it be so purified as to be no worse in quality than the water with which it mingles. Extreme action of this sort would be difficult on economic and other grounds, and experienced students of stream pollution are a unit in recognizing the impossibility of restoring our rivers to a state of pristine purity. Even if all practicable measures of protection are put in force, the streams in populous regions can never be regarded as fit sources of water supply without purification.

On the other hand, stream pollution cannot be allowed to proceed unchecked. Not only is the conservation of our natural water courses in an attractive condition highly desirable from the standpoint of recreation and esthetic gratification, but unless pollution is restricted within certain definite limits many streams will become unavailable as sources of water supply. No water purification plant can be expected to function properly if an undue burden is placed on it.

While competent authorities have long recognized the necessity for control of stream pollution, a serious obstacle to such control has existed in the lack of cooperation between the several states and the absence of centralized power to enforce cooperation. A badly polluted stream crossing the boundary from one state into another may reach the citizens of the latter state robbed of its dissolved oxygen and loaded with offensive and even dangerous materials. If the citizens of the state invaded by the polluted river can draw on no other readily available source of water supply, to say nothing of their other interests in the stream, they plainly have a cause of grievance. By no direct act of their own, or of their state or national government, they are deprived of a certain right in the utilization of their natural surroundings.

The methods most suitable for the proper regulation of such interstate relations are not to be settled offhand, but the problem certainly calls for prompt and serious consideration. If nothing is done, if the whole situation is allowed to drift, parts of the country in the near future will suffer acutely, and in the long run remedial measures will prove difficult and costly. Phelps[1] has called attention to the significance possessed by the report of the International Joint Commission on the Pollution of Boundary Waters in pointing a way to the solution of the problem of stream pollution within the United States. It might have been anticipated that the regulation of pollution in the international boundary waters in which both the United States and the Canadian governments are interested would prove especially difficult, but this is apparently not to be the case. In the effort to discover what remedies for preventing injury to health and property are "possible and advisable," the international commission has enlisted eminent expert advice, and under careful supervision has carried on an extensive series of bacterial examinations. It is interesting to note that one outcome of the work undertaken by the commission has been the fixing of a standard of permissible pollution in the international waters. The limit of bacterial contamination is considered to be exceeded if the annual average number of *B. coli* is higher than about 500 per hundred cubic centimeters, or, expressed in other terms, "the limit of permissible bacterial pollution shall be decreed to have been exceeded when the effective dilution . . . shall be less than 4 cubic feet per second per capita of contributing population, based upon mean river stages during the season May to September, inclusive."

The report is important, not merely for its specific practical recommendations, but also, as Phelps points out, for the suggestions which it offers as to the way to conserve and harmonize the interests of the several states in the interstate streams which traverse their territory. Many streams are used and will continue to be used for the diverse purposes of water disposal and water supply. It ought to be possible for the states of the union to cooperate with the national government to obtain information about the numerous, involved and often technically obscure questions, that justice may be done all interests, and especially that the public health shall receive no injury. Purely legal procedures based sometimes on technicalities and often on insufficient knowledge seem hardly adequate. Steps should be taken at once looking toward some sort of coordinated scientific control of stream pollution. In some instances groups of states might conceivably act together, but probably a national commission or some other central federal body, such as the United States Public Health Service, would be more effective. Prompt action is important.

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[1] Phelps, E. B.: Control of Pollution of Streams, Pub. Health Rep., 1917, 32, 167.

Current Comment

IMPLIED WARRANTY IN THE SALE OF FOOD: A ZOOLOGICAL VIEW OF "DISEASED" MEATS

Elsewhere in this issue appears an article by Stiles[1] in which he discusses, from a zoological point of view, certain phases of the "implied warranty" in the sale of meat. The views advanced are not altogether in harmony with certain legal decisions which have been made by the courts of this country, but these views were not before the courts which made the decisions. If courts generally admit the validity of the views expressed by Professor Stiles, a number of medicolegal precedents, as applied to meats, will be overturned. In brief, Stiles maintains that the terms "diseased meat" and "meat from diseased animals" in the food laws should be interpreted as meaning "likely to produce disease in man," rather than in the popular sense of the terms. Proceeding further, he submits that the "implied warranty" assumed by the vendor is predicated on an implied obligation on the part of the purchaser that the food will be "properly prepared" for reception into the human stomach, and if the purchaser fails in this the vendor cannot be held responsible. Next, the claims that since no method of inspection is known on the basis of which a butcher can say that pork is free from trichinae, fresh, unsafeguarded pork is not a proper article of food unless it is properly cooked, and hence the obligation of preventing trichinosis rests on the purchaser, not on the vendor; if, however, the vendor is assumed to guarantee that pork does not contain trichinae, this assumption implies that the vendor is simply making a bet to this effect, and therefore he is not assuming a legal debt. The United States government has repeatedly issued warnings to the public that pork should be properly cooked in order to safeguard the consumer against trichinosis, but in four or five states in which cases have come to trial, the vendors have lost in the courts. Quite recently several cases have been tried in which the views advanced by Stiles were submitted in the testimony. In one case, part of his testimony was excluded by the trial judge, and the jury decided against the vendor; in other cases in which the judges admitted Stiles' testimony, the juries decided in favor of the vendor. The medicolegal status of trichinosis in this country is now in the making, and it will be important as well as interesting to see the position courts take in regard to the line of testimony recently advanced. Should the courts generally hold in favor of the vendor, it would mean shifting a part of the burden of governmental responsibility for the health of the individual on himself in a greater measure than has heretofore been proposed. Popular education and the facilities of distribution of dependable information relative to personal and public hygiene would have to be further extended to take the place of governmental protection at the source. To steer between the possible dangers of actually harmful food on the one hand and, on the other, the hardships which may result from excluding available foodstuffs which, if properly treated, would be unquestionably wholesome, will call for intelligent consideration rather than hasty generalities, either legal or academic. Without cooperation, the government cannot be expected to guarantee life, health and happiness; with cooperation, it may help the individual intelligently to help himself.

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[1] Stiles, C. W.: Trichinae in Pork and Nematodes in Butterfish, The Journal A. M. A., this issue, p. 685.

LIPEMIA IN DIABETES

Bloor's valuable contribution to our knowledge of blood lipoids ("fats") in diabetes and their probable significance, to which detailed reference has been made in The Journal,[1] has an unanticipated importance for the management of diabetes, and deserves careful study from this point of view. He found that in carefully treated cases, particularly when complete or partial fasting was employed, lipemia in the sense of a milky or cloudy serum never was present. The origin of lipemia, when this occurs, clearly appears to be due to the presence of fat in the diet. Bloor accordingly has this to say regarding the application of his findings in the dietotherapy of diabetes:[2] The dietary treatment of diabetes was until recently to withhold carbohydrate and make up the caloric deficiency with protein and fat. The resulting overwork of the fat-burning mechanism would be expected to cause, in some cases at least, a partial failure of the mechanism with an accumulation of fat and its metabolites in the blood. A contributing factor is the lack of available carbohydrate, without which complete burning of the fatty acids does not seem to be possible. The high lipoid values when there is no lipemia may probably be regarded as an earlier manifestation of the same partial failure of the fat metabolism. The mechanism is still working in an approximately normal manner, since the relations between the lipoids are normal, but the accumulation of the metabolites has begun. In the actual lipemia the mechanism has fallen behind with its work, and the raw materials have accumulated until they can no longer be carried in solution in the plasma. Even at this time not all parts of the mechanism have failed; this is evident from the increase of cholesterol, which keeps pace with the fat. That part of the process, however, which has to do with the formation of lecithin from fat has apparently failed, and possibly this failure may be the underlying cause of the lipemia. Under former conditions of treatment, the chances of recovery of a diabetic with lipemia were generally regarded as poor, as might be expected if the foregoing explanation of the cause of lipemia were true, since the continued diet of fat involved the overloading of an already failing mechanism. No better claims are needed to indicate the importance of a modification of treatment to include the control of fat as well as the carbohydrate in the diet. Considerable attention has recently been given to the plan of fasting the patient until the urine is sugar-free, and then building up a tolerance for carbohydrate and protein.[3] An added novelty in severe, long standing and complicated cases now involves not beginning the fast until after a preliminary dietary treatment consisting in first removing the fat from the diet, then reducing the protein, and leaving the exclusion of the carbohydrate as the final step in the procedure. Fat is not added to the diet subsequently until considerable protein tolerance is established. The value of these innovations based on scientific experience remains to be ascertained in clinical practice.

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[1] Blood Lipoids and Diabetes, editorial, The Journal A. M. A., Nov. 25, 1916, p. 1602.

[2] Bloor, W. R.: The Lipoids ("Fat") of the Blood in Diabetes, Jour. Biol. Chem., 1916, **26**, 428.

THE PHARMACOLOGY AND THERAPY OF THE URETER

The contributions which modern experimental pharmacology can make to practical therapeutics, either by direct transfer of its results or by correction of irrational procedures of treatment, are illustrated by some of D. I. Macht's[4] recent studies on the pharmacology of the ureter. He found that the opium alkaloids in respect to their action on the ureter, in vitro and in corpore, may be divided into two groups, according to their chemical structure — the pyridin-phenanthrene group, of which morphin and codein are the chief representatives, and the benzyl-isoquinolin group, of which the most important members are papaverin and narcotin. According to Macht, morphin and its allied alkaloids increase the contractions and produce a greater tonicity of the ureter, whereas papaverin and other members of its group produce a slowing or total inhibition of the contractions and relaxation of the tonus. In opium or the total alkaloids of opium represented by pantopon (pantopium hydrochloricum), the effect of the benzyl-isoquinolin group preponderates. These statements have been verified for the human ureter by experiments on excised parts obtained after surgical operations in cases of nephrectomy. The pharmacologic findings at once question the wisdom of the conventional administration of morphin to relieve the excruciating pains of renal or ureteral colic. Clinical experience teaches that the ordinary small doses of this drug are almost always ineffectual, and even large ones may be of little avail. Macht's experimental observations on the opium alkaloids now throw light on this subject. Ureteral colic is due to spasmodic contractions of the ureter caused by the irritating calculus. As morphin increases the spasm it is likely to aggravate the condition. The only relief it can be expected to give is through the narcotic action of larger doses centrally on the brain. Chloroform produces relief because it not only quiets the brain but also relaxes the spasm of the ureter. The same is true of the alkaloid mixture in opium and of papaverin — hence the use of opium or papaverin seems more rational than that of morphin in ureteral colic. Furthermore, the slighter toxicity of papaverin, its tonus lowering power, and its local analgesic properties suggest its local application in spasmodic conditions of the ureter. This can be accomplished with a catheter through the cystoscope. A limited experience on man encourages the resort to the plan outlined as a possible remedial innovation of decided merit.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Clinic Opened.—February 16, the San Diego Diagnostic Group Clinic of the John P. Scripps Memorial Foundation invited the medical profession of San Diego and Imperial counties to the opening of the clinic in its new building.

Stanford University Popular Lectures.—The lectures for March in the courses of popular lectures to be given in Lane Hall, San Francisco, under the auspices of the Stanford University Medical School, are as follows:

March 9: "The Problem of Race and Race Prejudice," Prof. Arthur W. Meyer, Professor of Anatomy, Stanford Medical School.

March 23: "Prevention of Blindness" (Illustrated), Dr. Hans Barkan, Clinical Instructor in Ophthalmology, Stanford Medical School.

Personal.—Dr. Sherman T. White, Redding, has been appointed county physician of Shasta County.——Dr. Frederick P. Gay, Berkeley, has been appointed a member of the hygiene committee of the National Research Council.——Dr. William C. Voorsanger has been elected secretary, and Dr. Attilio H. Giannini has been reappointed executive secretary of the San Francisco Association for the Study and Prevention of Tuberculosis.——Dr. Daniel W. Zirker, Merced, has been appointed county physician of Merced County.——Dr. Timothy Lyman has been appointed assistant superintendent of the San Francisco City and County Hospital, succeeding Dr. Harold D. Barnard (resigned).

GEORGIA

Hospital Notes.—The Griffin Hospital is to be managed hereafter by a board of three, one to be selected by the commissioner of Spaulding County, one by the city of Griffin, these two to select a third member of the board.

New Societies Organized.—Physicians of Terrill County met at Dawson, January 30, and reorganized the Terrill County Medical Society, electing Dr. Owen T. Kenyon, Dawson, president, and Claud G. Hooten, Bronwood, secretary-treasurer.——The Second District Medical Association was recently organized at Thomasville, and Dr. Everett Daniel, Moultrie, was elected president; Dr. William J. Jennings, Thomasville, vice president, and Dr. Erle T. Newsom, Camilla, secretary-treasurer.

Personal.—Dr. Charlton C. Whittle has been elected district commissioner of health for Irwin and Tift counties in place of Dr. Arthur G. Fort, Atlanta, resigned.——Dr. Cyrus W. Strickler has been elected president of the medical board of Grady Hospital, Atlanta; Dr. Frank K. Boland, vice president, and Dr. John W. Funke, secretary.——Dr. William N. Adkins has resigned as medical director of the Atlanta public schools.——Dr. George L. Harman has been appointed a member of the board of managers of the Savannah Hospital.——Dr. F. H. Letson has been elected mayor of Grantville.

State Sanatorium Trustees Appointed.—The governor announces that the following physicians have been appointed health shall receive no injury. Purely legal procedures based sometimes on technicalities and often on insufficient knowledge seem hardly adequate. Steps should be taken at once looking toward some sort of coordinated scientific control of stream pollution. In some instances groups of states might conceivably act together, but probably a national commission or some other central federal body, such as the United States Public Health Service, would be more effective. Prompt action is important.

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[3] Compare Joslin, E. P.: Am. Jour. Med. Sc., 1915, **150**, 485.

[4] On the Pharmacology of the Ureter, III, The Action of the Opium Alkaloids, Jour. Pharmacol. and Exper. Therap., 1916, **9**, 197.

Current Comment

IMPLIED WARRANTY IN THE SALE OF FOOD: A ZOOLOGICAL VIEW OF "DISEASED" MEATS

Elsewhere in this issue appears an article by Stiles[1] in which he discusses, from a zoological point of view, certain phases of the "implied warranty" in the sale of meat. The views advanced are not altogether in harmony with certain legal decisions which have been made by the courts of this country, but these views were not before the courts which made the decisions. If courts generally admit the validity of the views expressed by Professor Stiles, a number of medicolegal precedents, as applied to meats, will be overturned. In brief, Stiles maintains that the terms "diseased meat" and "meat from diseased animals" in the food laws should be interpreted as meaning "likely to produce disease in man," rather than in the popular sense of the terms. Proceeding further, he submits that the "implied warranty" assumed by the vendor is predicated on an implied obligation on the part of the purchaser that the food will be "properly prepared" for reception into the human stomach, and if the purchaser fails in this the vendor cannot be held responsible. Next, the claims that since no method of inspection is known on the basis of which a butcher can say that pork is free from trichinae, fresh, unsafeguarded pork is not a proper article of food unless it is properly cooked, and hence the obligation of preventing trichinosis rests on the purchaser, not on the vendor; if, however, the vendor is assumed to guarantee that pork does not contain trichinae, this assumption implies that the vendor is simply making a bet to this effect, and therefore he is not assuming a legal debt. The United States government has repeatedly issued warnings to the public that pork should be properly cooked in order to safeguard the consumer against trichinosis, but in four or five states in which cases have come to trial, the vendors have lost in the courts. Quite recently several cases have been tried in which the views advanced by Stiles were submitted in the testimony. In one case, part of his testimony was excluded by the trial judge, and the jury decided against the vendor; in other cases in which the judges admitted Stiles' testimony, the juries decided in favor of the vendor. The medicolegal status of trichinosis in this country is now in the making, and it will be important as well as interesting to see the position courts take in regard to the line of testimony recently advanced. Should the courts generally hold in favor of the vendor, it would mean shifting a part of the burden of governmental responsibility for the health of the individual on himself in a greater measure than has heretofore been proposed. Popular education and the facilities of distribution of dependable information relative to personal and public hygiene would have to be further extended to take the place of governmental protection at the source. To steer between the possible dangers of actually harmful food on the one hand and, on the other, the hardships which may result from excluding available foodstuffs which, if properly treated, would be unquestionably wholesome, will call for intelligent consideration rather than hasty generalities, either legal or academic. Without cooperation, the government cannot be expected to guarantee life, health and happiness; with cooperation, it may help the individual intelligently to help himself.

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[1] Stiles, C. W.: Trichinae in Pork and Nematodes in Butterfish, The Journal A. M. A., this issue, p. 685.

LIPEMIA IN DIABETES

Bloor's valuable contribution to our knowledge of blood lipoids ("fats") in diabetes and their probable significance, to which detailed reference has been made in The Journal,[1] has an unanticipated importance for the management of diabetes, and deserves careful study from this point of view. He found that in carefully treated cases, particularly when complete or partial fasting was employed, lipemia in the sense of a milky or cloudy serum never was present. The origin of lipemia, when this occurs, clearly appears to be due to the presence of fat in the diet. Bloor accordingly has this to say regarding the application of his findings in the dietotherapy of diabetes:[2] The dietary treatment of diabetes was until recently to withhold carbohydrate and make up the caloric deficiency with protein and fat. The resulting overwork of the fat-burning mechanism would be expected to cause, in some cases at least, a partial failure of the mechanism with an accumulation of fat and its metabolites in the blood. A contributing factor is the lack of available carbohydrate, without which complete burning of the fatty acids does not seem to be possible. The high lipoid values when there is no lipemia may probably be regarded as an earlier manifestation of the same partial failure of the fat metabolism. The mechanism is still working in an approximately normal manner, since the relations between the lipoids are normal, but the accumulation of the metabolites has begun. In the actual lipemia the mechanism has fallen behind with its work, and the raw materials have accumulated until they can no longer be carried in solution in the plasma. Even at this time not all parts of the mechanism have failed; this is evident from the increase of cholesterol, which keeps pace with the fat. That part of the process, however, which has to do with the formation of lecithin from fat has apparently failed, and possibly

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[1] Blood Lipoids and Diabetes, editorial, The Journal A. M. A., Nov. 25, 1916, p. 1602.

[2] Bloor, W. R.: The Lipoids ("Fat") of the Blood in Diabetes, Jour. Biol. Chem., 1916, **26**, 428.

Harvard Medical Lectures.—The free public lectures given under the auspices of the faculty of medicine of Harvard University, at the Medical School, Longwood Avenue, Boston, at 4 o'clock on Sunday afternoons during March will be as follows:

March 4: "Diseases of the Teeth and the Use of the X-Ray in Their Diagnosis and Treatment," Dr. L. M. S. Miner.
March 11: "Social Service in Medicine," Miss Ida M. Cannon.
March 18: "Tuberculosis; Its Cause and Prevention," Dr. Cleaveland Floyd.
March 25: "Methods of Medical Progress," Dr. W. B. Cannon.

MICHIGAN

Medical Library for Detroit.—Plans for a municipal medical library were launched, February 14, at a dinner given by Dr. Arthur D. Holmes to the board of trustees of the library committee of the Wayne County Medical Society. It is proposed to create a memorial fund, the income from which can be used for the maintenance of the library.

College Merger Seems Assured.—A report states that on February 23 the regents of the University of Michigan adopted a resolution confirming the union with the University of the Detroit College of Medicine and Surgery. The terms of the merger are that the latter shall turn over its charter, real estate, equipment and hospital privileges to the university and that a fund of a million dollars will be raised for the development by the university of a graduate school of medicine in Detroit.

Personal.—Dr. Walter C. Walker, Highland Park, was thrown from his automobile and seriously injured in a collision with a trolley car, February 2.——Dr. Guy L. Kiefer, Detroit, has been appointed a member of the state board of health, to succeed Dr. John H. Kellogg, Battle Creek, and Dr. William F. English, Saginaw, to succeed Dr. Henry S. Bartholomew, Lansing.——Dr. George L. LeFevre has been elected vice president of the Union National Bank, Muskegon.——Dr. Benjamin F. Black has been elected president of the Holton State Bank.——At a meeting of the stockholders of the Ovid State Savings Bank, Dr. James McGillicuddy was elected vice president.

MINNESOTA

Paralysis and Smallpox.—The first case of infantile paralysis for the season was reported to the health department of St. Paul, February 23.

Sanatoriums Opened.—The tuberculosis sanatorium for the counties of Renville, Chippewa, Lac qui Parle and Yellow Medicine, located southeast of Granite, was opened, March 1. ——Buena Vista Sanatorium, the new sanatorium for Wabasha County, erected at a cost of $45,000, was opened February 1.

Personal.—Dr. Christian S. Reimestadt resigned as health officer of Brainerd, February 13, and was immediately reappointed health officer and the appointment confirmed.——Dr. Julius P. Sedgwick, Minneapolis, has returned after a trip to the West Indies and the Canal Zone.——Dr. Justus O'Hage, Jr., St. Paul, has returned after service with the German Red Cross, on the eastern war front.——Dr. Harry B. Ewens, Virginia, has left for Toronto, for duty with the Canadian Army Medical Corps.

MONTANA

New Hospitals.—The Attix Clinic Hospital, Lewistown, built at a cost of $75,000, will be opened, April 1.——The new building of the Deaconess Hospital, recently erected at Great Falls, at a cost of $125,000, is a four-story, fireproof building, 139 by 39 feet, and contains eighty private rooms.

NEBRASKA

Health Conference.—The annual conference of local and state health officers was held in the Garden Room of the Lincoln Hotel, February 21 and 22. The governor delivered the address of welcome, and response was made by Dr. Robert McConaughy, York.

To Change Laboratory Control.—A bill has been introduced in the state legislature removing the present state bacteriologic laboratory from the control of the state board of health, and placing it under the charge of the University College of Medicine, Omaha. The bill also fixes the maximum salary of the state bacteriologist at $2,400 a year.

Personal.—Dr. William T. Eikner, Sidney, has been appointed county physician of Cheyenne County.——Dr. Joseph V. Hinchman, Blair, has been appointed physician to the Grand Island Soldier's Home, succeeding Dr. William R. Waggener, Humboldt (resigned).——Dr. M. Alace M. Kani, Omaha, suffered a fracture of the skull as a result of a collision between automobiles, February 3, and is in a serious condition.

NEVADA

Payment to Medical Board Disapproved.—The ways and means committee of the state legislature, February 13, made an unfavorable report on assembly bill No. 64, which provides for the payment of $20 a day to each member of the State Board of Medical Examiners while the board is in session.

NEW YORK

Transfer of Quarantine Station.—A concurrent resolution was adopted by the legislature, February 15, recommending the transfer from the state to the federal government of the New York Quarantine Station and calling on members of Congress to pass a measure appropriating $1,395,275 by July 1 to reimburse the state to take over the plant now utilized by the health officer of the port.

Public Health Association Officers Resign.—At a meeting of the executive committee of the Rochester Public Health Association, February 10, the resignations of Medical Director Dr. Edward G. Whipple and of the secretary, Mr. Garret Smith, were placed in the hands of Dr. Henry T. Williams, president of the board. The reason for this action is said to be "in view of the long continued lack of harmony in the present board of directors."

New York City

Personal.—Dr. Emil Mayer has been appointed consulting laryngologist to Mount Sinai Hospital.——Dr. Thomas H. Curtin, Bronx, was knocked down by an automobile at One Hundred and Forty-Fifth Street and Broadway, sustaining a fracture of several ribs.——Dr. Mortimer W. Raynor has been appointed chief psychiatrist of the penal institutions of New York City.

Must Report Occupational Diseases.—The department of health calls the attention of physicians to the fact that in a number of instances they have failed to report cases of occupational disease caused by various chemicals to the department of health, as required by the sanitary code. Physicians and the superintendents and managers of institutions and hospitals are urged to cooperate with the department of health in making prompt report of such cases. Special postal cards for the reporting of occupational diseases are furnished by the Division of Industrial Hygiene of the Bureau of Preventable Diseases on request.

Labor Unions Will Cooperate in Health Work.—A special meeting was held in this city, February 18, for the purpose of discussing questions affecting the health of working people, at which delegates, elected by more than fifty unions affiliated with the Central Federated Union, organized themselves into a permanent labor sanitation committee. Plans are being formulated for the cooperation of this committee with the Health Department's Division of Industrial Hygiene. It is believed that the two forces working together may by educational and other efforts secure the adoption by employers and by employees of industrial methods that may have far reaching effects in diminishing the amount of sickness prevalent in industry.

Free Lectures on Disease Prevention.—During March, the course of free lectures given by the public health education committee of the Medical Society of the County of New York at the New York Academy of Medicine will be as follows:

SOME OF THE ESSENTIALS FOR THE CONTROL OF VENEREAL DISEASES

Tuesday, March 6, 8:15 p. m.
"The Responsibility of Society," Edward L. Keyes, Jr., M.D.,
"The Importance of Gonorrhea," Caroline Finley, M.D.
"Incidence of Syphilis on the Community," Victor Cox Pederson, M.D.

IMPORTANT FACTORS IN THE HEALTH OF WOMEN

Thursday, March 15, 3:30 p. m.
"Habit Posture in Relation to Pelvic Conditions," Eliza M. Mosher, M.D.
"Physical Conditions as Related to Life Insurance," Charles G. Merchant, M.D., Medical Director, Mutual Life Insurance Co.
"The Relation of the Internal Secretions to Gynecology," Lillian P. Farrar, M.D.

MODERN LIFE AS GOVERNED BY NERVES

Wednesday, March 21, 8:15 p. m.
Title to be announced, Frederick Tilney, M.D.
"Fad of Psychanalysis," Beatrice Hinkle, M.D.
"What Every Nervous Woman Should Know," Edward Livingston Hunt, M.D.

RECREATION AS AN AID TO HEALTH

Thursday, March 29, 3:30 p. m.

"Pageantry and Plays in Community Life," Mary Porter Beegle.

"Gymnastics and Dancing Indoors and Out," William Gilbert Anderson, Dr.P.H., M.D., Professor and Director, Yale University Gymnasium.

"Psychical Values of Recreation," Caroline Rickards, M.D.

PENNSYLVANIA

Personal.—Dr. John J. Sullivan, Scranton, suffered severe cuts of the leg in an automobile accident, February 18.——Dr. Edward Ryan, Wilkes-Barre, has returned after two years spent in medical relief work in Serbia.——Dr. William S. Long, Reading, has abandoned his intention of joining the American Physicians' Relief Expedition and serving in the German field hospitals.

To Equip a Base Hospital.—The Pennsylvania Division for National Preparedness on February 23 turned over to the American Red Cross $25,000 for the equipment of a base hospital to be known as Pennsylvania Base Hospital No. 10, Pennsylvania Women's Division for National Preparedness. This money, which was pledged last summer, was given as follows: $10,000 by Mr. E. T. Stotesbury, $10,000 by Cyrus H. K. Curtis and $5,000 by Mrs. George W. Childs Drexel.

Application of Battlefield Lessons.—Advance of surgical methods developed in the European battlefields and their application to the workers in industrial plants were outlined at the Fourth Convention of Industrial Physicians, held at Harrisburg, February 16, at which Dr. William O'Neal Sherman, chief surgeon of the Carnegie Steel Company, discussed "The Dawn of a New Surgical Era"; Major Robert U. Patterson, M. C., U. S. Army, and Dr. Joseph C. Bloodgood, Baltimore, spoke on "The National Standards for First Aid"; Dr. William Estes, South Bethlehem, and Dr. Charles A. E. Codman, Philadelphia, took up "The Relation of the Physician to the Compensation Law and Its Proposed Amendments"; Drs. Frederick L. Hoffman, Newark, N. J., and Alfred Stengel, Philadelphia, considered "Compensation for Industrial Diseases," and Drs. Edward Martin, Philadelphia, and John B. Lowman, Johnstown, discussed "The Treatment of Fractures of the Long Bones from the View Point of Function."

Philadelphia

Lecture Course for Women.—The lecture course for women offered by the Women's Medical College of Pennsylvania, Philadelphia, on "The Health Problems of Every-Day Life," will be as follows during March:

March 7: "Prenatal Care and the Newborn Baby," Dr. Alice Weld Tallant.

March 14: "The Care and Feeding of Children," Dr. Theodore Le Boutillier.

March 21: "The Care of the Eyes," Dr. Mary Buchanan.

March 28: "The Importance of the Common Cold," Dr. Margaret F. Butler.

Personal.—Dr. William G. MacCallum, professor of pathology in the College of Physicians and Surgeons, New York, delivered the seventeenth Rush Society Lecture at the College of Physicians, March 1, on "Prevalent Disease in the East Indies."——Dr. L. Webster Fox has been reelected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind.——Dr. Charles S. Potts has been elected neurologist to the German Hospital.——Dr. Horace Phillips has succeeded Dr. Albert C. Buckley, resigned, as visiting physician in the psychopathic ward of the Philadelphia General Hospital.——Dr. Henry B. Ingle has been elected a member of the board of trustees of the Charity Hospital.——Dr. Eugene Swayne has organized Field Hospital Company No. 3, N. G. Pa.——Dr. Francis C. Abbott has left Philadelphia for another term of service on the French war front.

UTAH

Personal.—Dr. George E. Hyde, Salt Lake City, has been reappointed superintendent of the State Mental Hospital, Provo.——Dr. John J. Galligan has succeeded Dr. Thomas J. Howells (resigned) as assistant health commissioner of Salt Lake City.

New Officers.—Utah County Medical Society: president, Dr. Ephraim G. Hughes, Provo; vice president, Dr. Philemon M. Kelly, American Fork, and secretary-treasurer, Dr. Walter T. Hasler, Provo. Cache County Medical Society: president, Dr. Thomas Budge, Logan; vice president, Dr. Curtis Bland, Preston, an secretary-treasurer, Dr. Frank O. Reynolds, Logan.

Military Program for Medical Society.—At the February meeting of the Salt Lake County Medical Society, Dr. John F. Sharp, Salt Lake City, delivered an address on "The Work of the Medical Department in the Recent Concentration"; Dr. George F. Roberts, Salt Lake City, discussed "Field Hospitals and Ambulance Companies"; Dr. Willard Christopherson, Salt Lake City, spoke on "The Regimental Surgeon," and Dr. Andrew A. Anderson, Brigham, described the work of sanitary inspection.

Bill Regarding Health Department.—A bill was introduced by Representative Greenwood, February 7, creating a health department of the state, combining under one head the work of several individual departments now operated as separate divisions. The new department, in addition to sanitary activities, will embrace the work of the state dairy and food department, the state superintendent of weights and measures, state hotel inspector and the sanitary inspector of barber shops. The board is to be composed of six practicing physicians and one sanitary engineer, and will select from its membership a state health commissioner, who will hold office for four years.

WASHINGTON

Sanatorium Wing Assured.—At a meeting of the Spokane County Antituberculosis Society it was announced that the county commissioners were now ready to help the league erect the children's wing at the Edgecliff Sanatorium. The wing will cost about $10,000, and work will begin in the early spring.

Medical Board Election.—At the annual meeting of the Washington State Board of Medical Examination the following officers were reelected: Dr. Royal A. Gove, Tacoma, president; Dr. Daniel M. Stone, Seattle, vice president; Dr. Conrad N. Suttner, Walla Walla, secretary, and Herbert F. Morse, D.O., Wenatchee, treasurer.

Personal.—Dr. V. Sheldon Smith, Seattle, has sailed for North Borneo, on a mission for the British government.——Dr. J. S. P. Rich, Roy, has been appointed superintendent of the Pearce County Tuberculosis Sanatorium, succeeding Dr. Raymond Cary.——Dr. Edward J. Stubbs, Seattle, who has been on duty on the western war front for more than two years, has returned to the United States.——Dr. Elmer E. Heg, Tacoma, has been reelected president of the state board of health.

Physicians Win Suit.—The supreme court recently handed down a decision in the case of R. D. Smith versus J. P. Driscoll, Pasca, and Henry B. O'Brien, Pasca, affirming the judgment of the lower court in favor of the physicians. The complainant asked for damages of $5,000 on account of an alleged wrongful publication and disclosure of confidential information acquired by the physicians in their professional capacity, and made while testifying as witnesses in a case to recover fees for medical service rendered by them.

WEST VIRGINIA

Personal.—Dr. Edmond D. Wells has been appointed physician in charge of a hospital at Clifton Forge, Va.

Ohio County Medical Society Activities.—At the February meeting of the Ohio County Medical Society, at Wheeling, held in cooperation with the board of education, Dr. Erwin A. Peterson, director of medical inspection and physical education of Cleveland, spoke on "Physical Education."——At the meeting on February 9, the annual banquet was held, presided over by Gov. H. D. Hatfield. Dr. Charles H. Chetwood, New York, and Dr. John A. Bodine, New York, presented papers, illustrated by motion pictures.

CANADA

Hospital News.—The tuberculosis sanatorium at Kentville, N. S., is to be enlarged to provide additional accommodations for 100 returned soldiers.——An addition is to be made to the hospital at Ingersoll, Ont., to cost $10,000.——The Hotel Dieu Hospital, Windsor, Ont., is letting a contract for a new addition, to cost $40,000.——As more room is needed for returned convalescent soldiers in Montreal, one of the newest and biggest public schools in that city is being converted into the uses of a general hospital. Negotiations are proceeding for the transfer to the Canadian Hospitals' Commission.

Personal.—Dr. Albert J. Fraleigh, Toronto, is spending the winter in California.——Col. Frederick W. Marlow, Toronto, who recently resigned from the position of A. D. M. S., Military District No. 2, will leave shortly for England.——Col. Herbert A. Bruce, Toronto, has gone to Washington, D. C., by permission of the Canadian Minister of Militia, at the request of Secretary of War Baker, to address a gathering of U. S. Army medical men as to the methods followed in Britain, France and Canada in dealing with sick and wounded soldiers.——Major Kenneth Mundell, Kingston, Ont., is to command the new army medical corps training depot recently established there to replace the field ambulance depot which is going to another point.——Dr. Robert C. MacGregor, London, Ont., has been appointed prison physician at the Jackson Penitentiary, Michigan.——Dr. Herbert W. Wall, Donalda, Alta., is spending the winter with his family in California.

University News.—Hon. Dr. Robert S. Thornton, Deloraine, minister of education of Manitoba, has introduced a bill into the legislature of that province by which the constitution of the University of Manitoba is to be remodeled. The sustaining income of that university is now derived from the province of Manitoba, outside the fees paid by students. By this legislation the university will come under the control of a board of governors, nine in number, appointed by the government, and serving for three years. The purpose of the legislation will bring the university under similar control to that of the University of Toronto.——It has been announced at Queen's University, Kingston, Ont., that more than 1,000 graduates and undergraduates of that institution are serving overseas.——The University of Toronto Base Hospital at Saloniki is to return to England. Since Col. James A. Roberts, Toronto, the officer in command, returned to England and was appointed to command the hospital at Taplow, the command of the Toronto unit has been under Col. William B. Hendry. The latter appointment will probably be made permanent.

GENERAL

Red Cross Base Hospital Offered.—The Eli Lilly Company, Indianapolis, has offered the local chapter of the American Red Cross $25,000, in the event of this country being drawn into war, to establish a base hospital of 500 beds. The offer is made as a memorial to Col. Eli Lilly of Indianapolis. Dr. Carleton B. McCulloch is to be director of the hospital.

Bequests and Donations.—The following bequests and donations have recently been announced:

Abington (Pa.) Hospital, a gift of $5,000 from Mr. and Mrs. Caleb S. Fox, as a memorial to their deceased son.

Dr. Frances R. Sprague, Norristown, Pa., household goods, jewelry, wearing apparel and a bequest of $20,000 by the Alumni Association of the Women's Medical College of Pennsylvania, Philadelphia, and $1,000, by the will of Dr. Bertha Lewis, Bryn Mawr, Pa.

Dr. Carl Brown, Bremen, Ohio, the residue of the estate of James E. Lane, after the payment of $2,000 to his son. The estate is valued at $23,000.

Candidates for Army Medical Corps.—The following applicants who successfully passed the examination, January 2-6, were appointed on the Medical Corps of the Army and have been ordered to the Army Medical School for the term beginning March 1: Drs. Clarke Blance, Norridgewock, Me.; Leon Alexander Fox, Birmingham, Ala.; Charles Elias Hyde, Southport, Conn.; David Dave Paulus, Oklahoma City; Rowland Daniel Wolfe, Fort Monroe, Va., and Max Riebenack Stockton, Swarthmore, Pa.

Safety Association Organized.—The Joseph A. Holmes Safety Association, made up of twenty-three societies, has been organized in Washington. Its objects are the betterment of mining conditions and of relations between operators and miners. The association will award annually one or more medals with honoraria, to be known as the Holmes Award, for the encouragement of more efficient safety devices, appliances or methods in mining, for personal heroism or for distinguished service or saving of life in any branch of the mining industry.

Interstate Quarantine Regulations.—Amendments were made, Feb. 12, 1917, to the interstate quarantine regulations promulgated by the treasury department, Jan. 15, 1916, relating to the following subjects: water for drinking or culinary purposes provided on cars and vessels by interstate carriers; water for drinking purposes provided at stations by interstate carriers; interstate transportation of persons having contagious or infectious diseases; sanitation of camps occupied by migratory workers, and prohibiting the interstate transportation of oysters and clams grown or handled under insanitary conditions. The text of these amendments may be found in *Public Health Reports* for February 23.

Army Medical Corps Examinations.—The surgeon-general announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held at convenient points the first Monday in each month. Full information concerning these examinations can be procured on application to the "Surgeon-General, U. S. Army, Washington, D. C."——Those who qualify at their preliminary examination and complete their hospital internship by July 1 will be ordered to the Army Medical School for the special session of the school commencing July 9. The regular session of the school will open on October 1. In order to perfect all arrangements for the examination, applications should be completed at the earliest practicable date. There are at present 230 vacancies in the Army Medical Corps. After July 1, there will be 222 additional vacancies.

Standardization of Supplies.—Previous to the opening of the sessions of the National Defense Committee, in Washington, February 12, the personnel of organization and program for the immediate future of the newly formed committee on the standardization of medical and surgical supplies was announced. The committee is as follows: Drs. George W. Crile, Cleveland; Harvey Cushing, Boston; Lieut.-Col. Carl R. Darnall, M. C., U. S. Army; Charles L. Gibson, New York; Richard H. Harte, Philadelphia; Col. Jefferson R. Kean, M. C., U. S. Army; Surg. Joseph A. Murphy, U. S. Navy; Dr. Henry S. Plummer, Rochester, Minn.; Surg. Theodore W. Richards, U. S. Navy; Asst. Surg.-Gen. William Colby Rucker, U. S. P. H. S., and Frank F. Simpson, Pittsburgh. The objects of the proposed standardization are: to make it possible to obtain surgical supplies in large volume on short notice; to have definite specifications so that manufacturers of similar articles may divert their activities with a minimum of delay or inconvenience to the production of supplies required by the army and navy; to reduce the cost by enabling manufacturers to produce the various articles in quantity, and to enable civilian practitioners to become familar with the instruments and appliances which they will be expected to use if they are called to the colors.

Lectures on Military Medicine and Camp Sanitation.—The following officers of the Medical Corps of the army have been detailed to deliver a course of lectures on military medicine and camp sanitation at the institutions specified after their names. In addition to this each of the officers named will be expected to interest the students of the colleges and interns of the hospitals in the Medical Corps of the army as a career, to interest practitioners in the Medical Officers' Reserve Corps, to examine applicants for the Medical Officers' Reserve Corps and to organize the Medical Officers' Reserve Corps in sections and to instruct the officers of these sections in the duties of medical officers in peace and war:

Lieut.-Col. Weston P. Chamberlain: Harvard University, Tufts College Medical School and the Boston University, Boston.

Major James I. Mabee: Syracuse (N. Y.) University.

Capt. Robert C. McDonald: University of Texas, Galveston.

Major George F. Juenemann: Medical College of South Carolina, Charleston; University of Georgia, Augusta, and Emory University, Atlanta, Ga.

Lieut.-Col. Frederick M. Hartsock: New York Homeopathic Medical College, and Flower Hospital, Fordham University, and New York City and Long Island College Hospital, Brooklyn.

Lieut.-Col. Henry Page: University of Pennsylvania, and Temple University, Philadelphia.

Capt. Taylor E. Darby: University of Maryland and Johns Hopkins University, Baltimore.

Major Thomas L. Rhoads: University of Arkansas, Little Rock.

Major James Bourke: Marquette University, Milwaukee, Wis.; Detroit (Mich.) Medical College and University of Vermont, Burlington.

Major William N. Bispham: University of Illinois; Loyola University, Rush Medical College, and Hahnemann Medical College, Chicago.

Major Guy V. Rukke: University of Minnesota, Minneapolis, and University of Michigan, Ann Arbor.

Capt. Wibb E. Cooper: Vanderbilt University, Nashville, Tenn., and University of Tennessee, Memphis.

Major Henry F. Pipes: Washington University Medical School, St. Louis University School of Medicine, St. Louis.

Capt. Norman L. McDiarmid: University of Louisville, Ky., and University of Cincinnati, Ohio.

Capt. Thomas C. Austin: University of Alabama, Mobile, and Tulane University, New Orleans, La.

Major Harry L. Gilchrist: University of Pittsburgh.

Capt. John A. Burket: University of Colorado, Boulder.

Major Walter D. Webb (retired): Georgetown University, Washington, D. C., and University of Virginia, Charlottesville.

Col. John M. Banister (retired): John A. Creighton Medical College and University of Nebraska, Omaha.

Col. Louis A. LaGarde (retired): Medical College of Virginia, Richmond.

FOREIGN

Sauerkraut Made from Turnips.—The *Medizinische Klinik* states that white turnips are proving a very acceptable substitute for cabbage in the making of sauerkraut.

Japanese Medical College and Hospital Burns.—February 20, the Osaka Medical College Building and Hospital, the largest in Central Japan, was destroyed by fire. There were 470 patients in the hospital, all of whom are believed to have been removed in safety. The loss exceeds $1,500,000.

Death in the Profession Abroad.—A. Pappenheim, privatdocent at the University of Berlin, noted for his work on the morphology of the blood and the blood diseases, editor of the *Folia haematologica*, recently succumbed to typhus acquired in his professional work. His manual on the chemistry of dyestuffs is an authority.

Institute for Experimental Psychology at Constantinople.—This new institution, founded by Professor Anschütz of Kiel, is now organized, and work has been begun with lectures and demonstrations by himself and his two Turkish assistants. It is a regular department in the University of Constantinople, including experimental psychology and pedagogics.

Leper Asylum on the Island of Sardinia.—A pavillion of the public hospital at Cagliari has been set apart for lepers in the contagious stage, and the provincial authorities have made notification compulsory of leprosy at any and all stages. They have also provided for removal of the children from a family where there is a leper, and for periodical surveillance of conditions in the homes of lepers, sterilization of the rooms, etc.

Births in Prussia in 1914.—The figures for 1914 show 599,728 boys and 566,852 girls born in Prussia. The total is 6,836 less than in 1913, and 19,820 less than in 1912. There were 35,948 stillbirths registered, twenty-one less than in the previous year. The number of illegitimate children totaled 92.2 per thousand born in wedlock. The mortality was 16.4 per cent. of the children born living, against 15 per cent. in 1913.

Medical Care for Soldiers' Families at Berlin.—The city of Berlin last year appropriated 500,000 marks to distribute among the physicians tending the families of soldiers. This was based on the assumption of a 5 mark fee for attendance during a sickness, including four or five consultations. But time has shown that this by no means covers the work, as the number of soldiers' families has materially increased, and Austro-Hungarian soldiers' families have also been coming to Berlin. The organized profession has therefore given notice to the city authorities that the arrangement terminates March 15. They ask for an appropriation of 1,250,000 marks as corresponding better to the customary minimal rates per patient. Negotiations are already under way between the organized profession and the authorities. The middle way has been proposed, namely, that the families unable to pay be given an allowance when sickness comes to them so they can remunerate their medical attendants themselves.

The Outlook for the Year's Food in Germany.—The *Deutsche medizinische Wochenschrift* of January 4 quotes the *Kreuzzeitung* as follows: "The estimation of the crop of bread grains proved to be a million tons too high, but still the crop is better than in 1915. In consequence of the more abundant harvest, barley and oats are to be used more freely for the table, not only in porridge and pudding form but in making bread. The failure of the potato harvest has led to the revoking of the order in regard to addition of potato to bread. Aside from seed potatoes, the total supply of potatoes for the table is only 279,000,000 hundredweights. The scarcity of potatoes is felt more in the cities on account of the lateness of the harvest and the lack of delivery wagons. The lack of potatoes for feed for cattle is bad for the stock of cattle. They are already feeling the effects of the more thorough milling of the grains, reducing the bran to use in feeding cattle, and also of the greater use of turnips and carrots for the table. Every animal ready to be slaughtered should therefore be slaughtered. At present there is no prospect of an increased fat ration. But the ration of meat may be increased by February. Conditions in regard to fruit, green vegetables, fish, eggs, and geese are said to be especially deplorable (*ganz besonders bedauerlich*) and they can scarcely be improved by the intervention of the food regulation board. Established maximal prices without public control have not worked particularly well; in some instances they have merely driven the articles from the market. The food regulation board will therefore not work along these lines, but will seek to improve the intolerable conditions (*unleidliche Zustände*) by delivery contracts, striving to bring the truck gardens, the fish markets and the geese farms into closer communication. It is to be assumed that the troops in the invaded countries, who last year had to be fed from Germany, will be able to raise their own food this year."

PARIS LETTER

Paris, Feb. 1, 1917.

The War

NEW MEDICAL MILITARY RANK

A presidential decree has established a new medical military rank, that of subadjutant, a grade lower than sublieutenant. Medical students presenting written evidence showing that they have attended at least eight quarters of medical study with a year of service at some post at the front in the military health service, as well as six months' service as auxiliary physician, are eligible for appointment to this rank. A successful examination before a special board must be passed. Students presenting six or seven certificates may be nominated to this service after passing a special examination, provided they have served an internship of at least one year in a civil hospital prior to their entrance into the army service. Students possessing only four or five certificates *must have served at least eighteen months* at a military health service post, and one year as auxiliary physician. They, too, must pass the special examination. Members of the army medical service may be appointed as auxiliary physicians under the following regulations: (*a*) Titular students with but four certificates validated at the time of their enlistment, provided they have attended a period of instruction of three months, served six months in the military health service and passed a practical examination before a special body of examiners; however, students having completed one year in the health service at the promulgation of the present decree can be appointed as auxiliary physicians. (*b*) Students holding but two or three certificates validated at their enlistment, and who comply with the following requirements: (1) three months of instruction supported by practical work and technical conferences; (2) six months' service at a post of the health service at the front; (3) examination before the special board of examiners and (4) six months' sojourn with the army.

ABUSE OF AMPUTATIONS OF THE THIGH IN ARTICULAR WOUNDS OF THE KNEE

Dr. Marquis reported on this subject to the Réunion médico-chirurgicale de la V-e Armée. A large percentage of the amputations made during this war were necessitated by articular wounds. The most frequent amputation was that through the thigh incident to a wound of the knee; in fact, one sixth of all amputations were of this type. For articular wounds with extensive bone lesions, Dr. Marquis suggests the consideration of two methods, resection and arthrotomy. He has found that extensive arthrotomy with suture of the synovial membrane, done shortly after the injury is inflicted, yields marvelous results. The operation must be performed by a competent surgeon under rigid aseptic conditions and with every facility at hand. Primary resection frequently saves a limb. Secondary amputation through the thigh has been resorted to, especially in cases of purulent arthritis, either after failure of arthrotomy or in preference to it. Bilateral arthrotomy, followed by the Carrel method of treatment, has given Marquis five cures in cases of purulent arthritis of the knee. If this treatment is ineffective, then a secondary resection must be done. He reports on twelve cases, three of which, however, are too recent to be included in his analysis. Among the remaining nine, one death occurred six days after operation, the result of a hemorrhage in Scarpa's triangle. One secondary amputation was done in seven cases, and cure was effected with good functional results. In the resection cases the stability of the bone union is increased by wire suture uniting the ends of the femur and tibia.

Death Resulting from Chloroform Anesthesia Administered by a Pharmacist in an Emergency

In June, 1916, Dr. Robert Brunet and Pharmacist Guy were fined 100 francs ($20) for having indirectly caused the death of a boy. The defendants appealed to a higher court, and were acquitted for the following reasons: It was not established that the physician had committed any act in the exercise of his art which would justify condemnation, and he proved that the operation performed on the boy was necessary and urgent; that he made an examination of the patient, and found no contraindication to the use of an anesthetic for the performance of the operation. He himself administered the chloroform in the usual way and with caution, although he entrusted the anesthesia to the pharmacist for a few moments. It could not be said that he was assisted by an incompetent person or that he turned over to the pharmacist the care of the patient. The boy died, it is true, but the court was unable to establish a reason for his death which had any bearing on any act of the attending physician. The court did not think it would be right to attribute the death to a professional error on the part of the physician. As for the pharmacist, who held the chloroform mask over the patient's face for less than two minutes, as directed by the physician, he was released. Both physician and pharmacist were relieved of the penalty inflicted by the lower court.

The Fight Against Syphilis

At the instance of M. Henri Rousselle, the city of Paris has made an appropriation of 60,000 francs ($12,000) for 1917 to the Prophylactic Institute (The Journal, April 15, 1916, p. 1213). The department of the Seine has granted an appropriation of 40,000 francs ($8,000) to be used for the same purpose.

LONDON LETTER

London, Feb. 5, 1917.

The Food Problem

The destruction of merchant vessels by submarines has exercised the government as to the problem of food supply. Though food is nearly double the price it was before the war, there is as yet no shortage and, thanks to abundant employment and high wages, the people are able to buy all that they require. But the future is not without some anxiety. The government has appointed a committee of experts, among whom are leading physiologists, including F. G. Hopkins, D. Noel Paton, and W. H. Thompson, to investigate the question. They have issued an important report, which should be of value to any country engaged in war. The committee finds that the dietary requirements of a nation for the most part engaged in active work cannot be satisfactorily met on a less supply of food as purchased than 100 gm. of protein, 100 gm. of fat and 500 gm. of carbohydrate. The carbohydrates should equal about 3,400 heat units a day. Taking into consideration the requirements of women and children, it has been concluded that 100 men, women and children will equal 77 units, that is to say "men." During the period of 1909-1913 there were available per "man" in the United Kingdom: protein, 113 gm.; fat, 130 gm., and carbohydrates, 571. This, it will be seen, is considerably above the minimum requirement, and allows a margin of waste. There have been either wasted or consumed in excess of requirements: protein, from 11 to 14 per cent.; fats, from 25 to 30 per cent., and carbohydrates, from 10 to 14 per cent.

War involves a redistribution of food into two shares: (1) for military and naval establishments, and (2) for the civilian population. The committee has assumed the former to be 4 millions (2 millions on home service and 2 millions in the field), and the latter to be 31.8 million "men" (42.5 million men, women and children). The available food, then, on the basis of supply before the war is:

	Military (4 millions) Gm.	Civilians (31.8 million "men") Gm.
Protein	140	106
Fat	180	120
Carbohydrates	500	563

This shows that on the basis of supply before the war the food available for the civil population would be more than sufficient as regards the supply both of protein and of energy. The committee finds that with reference to the supplies of meat, wheat, fish and sugar for the total population up to the present time (July 29, 1916), these, taken together, show a small increase in food values during the year ending June, 1916, as compared with conditions existing before the war. They have no evidence that the supplies of other foods have, in the aggregate, been less than in the period prior to the war. But they utter the warning that the needs of the armies, the decreased yield of the harvest at home in 1916, and possible interference with the supplies from abroad may reduce the supply in the future below this level. Up to the present the supply of food has provided a general margin of about 5 per cent. above the minimum necessary for proper nutrition, and rather more as regards the supply of energy. A redistribution could, therefore, be borne without serious injury to the community, but only on the condition that steps are taken to insure the equitable distribution of the available food throughout the population. While the supply of food, up to the present, has been adequate for the population, the rise in prices has accentuated the inequalities of distribution, which reduce the daily ration of many below the level of efficiency. Any curtailment of supplies, even to a limited extent, would result in the poorer classes obtaining less than is needful for safety, should distribution remain unorganized.

The question of killing cattle when 17 months old in place of the present method of slaughtering when 2½ years old is discussed. This production of "baby beef" would produce a large amount of protein and liberate fodder stuffs (hay, grass, straw, roots and oilseed cakes), but not stuffs suitable for human food. A universal application of the scheme is not immediately practicable, however. It would require much organization, especially in the care, purchase and distribution of suitable calves, and in many districts would also involve considerable alterations in the system of farming. On the other hand, it is estimated that about one third of the oxen fattened in winter are overfed to the extent of 2 pounds of "starch equivalent" per head per day. This works out at a loss of 64,000 tons of starch equivalent, which if properly used might produce 8,000 tons more beef. Again, during the last month of the fattening of winter-fed cattle (lasting from four to five months), appearance rather than weight is improved. By cutting out the last month, an obvious economy might be effected. Economy in fodder can also be secured by varying the kind of animal to which it is fed. Thus while 2⁹⁄₁₀ pounds of starch equivalent in fodder will produce 1,000 heat units in the form of milk from a good cow, 9 pounds are required to produce the same amount in "steer" beef. The figures for pig meat are 3 pounds, and for veal 4⁷⁄₁₀ pounds. They justify the agricultural policy of most continental countries which rely on dairy products, pig meat and veal for a large proportion of their supply of animal food.

Another proposal to increase the food supply is that milk should be used for making cheese instead of butter. It is assumed that 2½ gallons of milk make 1 pound of butter, and that 1 gallon of milk makes 1 pound of cheese. The question of energy value is not considered, since both butter and cheese contain practically the same amount of the fat of the milk. But the net gain which might be realized by the general adoption of cheese making in place of butter making is 55,000 tons of protein, or per "man" 4.2 gm. per day. Other suggestions which, as stated in previous letters to The Journal, have been put into force by the government, are the milling of a greater proportion of flour from wheat and the reduction in the amount of barley allowed to be used for brewing.

The food controller has issued an appeal to the whole population, asking people voluntarily to restrict their consumption of the three staple foods per week thus: bread, 4 pounds; meat, 2½ pounds, and sugar, ¾ pounds. These quantities have been arrived at after full examination of the stocks available. Only by this means can an adequate margin to meet contingencies be provided for. It is hoped that, by loyal obedience, compulsory rationing, which would require an elaborate machinery and absorb labor, may be avoided. The consumption of these commodities varies according to age, sex, occupation and other conditions. The indicated allowance, therefore, provides for adjustment or apportionment between members of each household in relation to individual needs. It is recognized that some persons eat more bread and less meat than the quantities indicated, and that others eat more meat and less bread. In all these cases a resolute effort on the part of each consumer to reduce consumption by at least 1 pound of bread or ½ pounds of meat per week, or both, will automatically bring about a saving of over 1,000,000 tons per annum of these foods. As regards bread, especially, the variation in individual consumption is most marked. This is attributable to the fact that the lower the scale of income and of consequent living, the higher the bread consumption, for with many in such circumstances meat is only intermittently comprised in the scale of dietary, whereas bread constitutes the main staple. Although these quantities will form the basis of the dietary scale, they will naturally be supplemented by other food products. The nation is placed on its honor to observe these conditions.

The Great Explosion

The greatest explosion in a munition factory experienced in England took place in a crowded part of London and was attended by many injuries. The majority of the injured were treated at the London Hospital. The house governor, Mr. E. W. Morris, has given in the *Hospital* a graphic picture of how the hospital confronted this catastrophe. Work was proceeding quietly and as usual on that evening. Those who were indoors behind drawn blinds had no warning beforehand. Those, however, who happened to be crossing the grounds from one part of the hospital to another had some warning. The sky was lighted eastward by a red glow which became brighter and brighter, until at last it was like a red twilight at sunset, and the whole of the details of the hospital building could be distinctly seen. A few seconds after the moment of greatest illumination, the explosion occurred. The explosion itself was not a single bang, but more like a short rattling clap of thunder when the storm is close overhead. Certain arrangements had been made in case of aerial attack in the immediate neighborhood. In this contingency the house governor goes to the main entrance, close to the telephone room, and directs proceedings in a general way. The engineers report to him and remain ready for what may happen. Porters who are sleeping in and who have weekly fire drill also report and await orders. Military orderlies, of whom there are about thirty in the hospital, also stand at attention. The orderlies are taught certain duties which they might have to carry out in case the hospital were struck by a bomb, such as the quickest way of emptying a ward of bedridden people.

When the explosion occurred the chief telephone operator was standing at the door of her room; she was certain that a bomb had dropped in the grounds close outside her window, which was broken. She went to her instrument at once and telephoned, as previously arranged, for the engineers; they appeared, however, before the necessary connections were made. An attempt was made to get through to the telephone exchange to obtain some idea of what had happened, but no reply could be elicited for about ten minutes. Meanwhile a somewhat alarming smell of fire was noticed; this, however, was soon traced to the fact that soot had been driven down many of the chimneys into the rooms. Porters were drawn up awaiting orders, as were the orderlies, and the house physicians and house surgeons went to their own wards to steady their patients, also according to plan. A call then came through from the police asking for medical assistance to be sent at once. They reported a fearful explosion at a large chemical works. It was easy enough to procure volunteers for such work, and in a few minutes five male and three female physicians and some dressers were ready to start with a large supply of tourniquets, morphin syringes, and instruments for rendering first aid. Soon the injured began to arrive in every conceivable form of conveyance, the greatest number in huge motor lorries.

Marriages

JOHN F. SPEARMAN, M.D., Sharon, Pa., to Fräulein May von Raczeck of Hannover, Germany, at Preiswitz, Silesia, Germany, October 16.

LIEUT. ROBERT B. HILL, M. R. C., U. S. Army, Fort Sam Houston, Texas, to Miss Lulu M. Dorsey of Clarksville, Md., January 11.

ORVILLE BRUCE MOON, M.D., Mills, N. M., to Miss Gwendolyn Hardy of Butte, Mont., at Las Vegas, N. M., February 11.

ELTON AUBREY RATCLIFFE, M.D., Petersburg, Va., to Miss Agnes M. Grigsby of Scribner, Va., at Elkton, Md., January 25.

DANIEL GISH STINE, M.D., Columbia, Mo., to Miss Ellen Wylder of Jacksonville, Ill., at Kansas City, December 23.

JOHN FRANCIS KENNY, M.D., Pawtucket, R. I., to Miss Anne Evangelist Lee of Woonsocket, R. I., February 5.

EDWARD D. FREEMAN, M.D., Osgood, Ind., to Mrs. Olive Bevan Townsend of Norwood, Ohio, February 8.

SIMON MAIMON SAMUELS, M.D., Seattle, to Miss Sophie Robbins, at Phoenix, Ariz., February 8.

HERMAN AUGUSTUS HELMING, M.D., Cusson, Minn.; to Miss Clara G. Jensen of Virginia, Minn., January 11.

THOMAS COOK STELWAGEN, JR., M.D., to Miss Elizabeth C. Coane, both of Philadelphia, February 14.

F. JANNEY SMITH, M.D., Detroit, to Miss Jeanie Wilmer Smart, at Lutherville, Md., February 14.

MORRIS T. HORWITZ, M.D., Bridgeport, Conn., to Miss Sabina M. Zinburg of Baltimore, February 21.

LEE WESTER STOREY, M.D., Cheyenne, Wyo., to Miss Mary Jane Hopkins of Denver, February 14.

SANFORD B. WHITING, M.D., to Mrs. Mary Merges, both of Portland, Ore., recently.

LEO JOHN DRETZKA, M.D., Detroit, to Miss Doris Moore, at Detroit, February 12.

Deaths

Lieut.-Col. Edwin Bentley, M. C., U. S. Army (retired), Little Rock, Ark.; New York University, New York, 1847; Bellevue Hospital Medical College, 1877; College of Physicians and Surgeon in the city of New York, 1877; aged 92; formerly a Fellow of the American Medical Association; a member and once president of the Arkansas Medical Society; a member of the Association of Military Surgeons of the United States; a member of the Mississippi Valley Medical Association; professor of the principles and practice of surgery in the Medical Department of the University of Arkansas; a pioneer surgeon of Arkansas; who entered the army at the outbreak of the Civil War as assistant surgeon of the Fourth Connecticut Infantry; was later made surgeon of United States Volunteers, and honorably mustered out in 1866 as lieutenant-colonel; then entered the medical corps of the army and after passing through the various grades was retired as major, July 3, 1888, and was given the grade of lieutenant-colonel, retired, April 3, 1904; died at his home, February 5, from the effects of a fall eight weeks before.

George Hudson Makuen, M.D., Philadelphia and Newfield, N. J.; Jefferson Medical College, Philadelphia, 1889; aged 61; a Fellow of the American Medical Association, and chairman of the Section on Laryngology, Otology and Rhinology in 1901-1902; president of the American Academy of Medicine in 1900, of the American Laryngological Association in 1915 and of the American Laryngological, Rhinological and Otological Society in 1912; widely known for his work on defects of speech; professor of defects of speech in the Philadelphia Polyclinic since 1896; laryngologist and otologist to Chester Hospital; laryngologist to St. Mary's and the Douglas Memorial hospitals, Philadelphia; at one time a member of the faculties of Jefferson Medical College, the Centenary Collegiate Institute and National School of Elocution and Oratory; died at his old home in Goshen, N. Y., February 21.

Whitman Vassel White, M.D., New York; Berkshire Medical College, Pittsfield, Mass., 1857; aged 82; surgeon in chief of the First Division of the Ninth Army Corps Field Hospital during the Civil War; for thirty-eight years operating and consulting surgeon to the Manhattan State Hospital, Wards Island; at one time superintendent of the State Insane Hospital, Binghamton, N. Y., and of the Government State Hospital for the Insane, Washington, D. C.; died at the home of his son in Richmond Hill, S. I., February 21, from cerebral hemorrhage.

Bertha Lewis, M.D., Bryn Mawr, Pa.; Women's Medical College of Pennsylvania, Philadelphia, 1893; aged 64; a Fellow of the American Medical Association; a member of the Philadelphia Pediatric Society; assistant orthopedic surgeon to the Philadelphia Polyclinic; orthopedist to the West Philadelphia Hospital for Women; a well known welfare worker and one of the organizers of the Southwark Neighborhood House; was instantly killed in a collision between automobiles at Bryn Mawr, February 11.

Lewis A. Ryder, M.D., Topeka, Kan.; Hahnemann Medical College, Chicago, 1883; aged 55; formerly surgeon of the Third Infantry, Kansas National Guard; once president of the state board of medical examination and registration, state reform school and Topeka city council; medical director of the Kansas Home Mutual Life Insurance Company; died in Stormont Hospital, Topeka, February 5, from gangrene, for which amputation of the foot was performed, January 25.

Albert George Blodgett, M.D., Ware, Mass.; Bellevue Hospital Medical College, 1868; aged 75; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; president of the Hampshire County (Mass.) Medical Society in 1904-1905; founder of the Brookfield Medical Club in 1882; for six years secretary of the board of health of Ware; died at his home, February 10, from arteriosclerosis.

Helen Reynolds Kellogg, M.D., Chicago; Northwestern University Women's Medical School, Chicago, 1886; aged 60; a pioneer worker in social welfare with especial reference to working girls; for many years one of the heads of the Klio Noonday Rest Association, and sponsor of many philanthropies; founder of a free dispensary for girls; died in the Cook County Hospital, February 21, from diabetes.

Robert Alexander Douglas Lithgow, M.D., Boston; University of Edinburgh, Scotland, 1871; University of St. Andrews, Dundee, 1890; aged 70; a member of the Massachusetts Medical Society; a writer of marked ability and a deep student of history, literature and ethnology; died in the Massachusetts General Hospital, February 16, from the effects of injuries received in a fall in December last.

Stephen Clifton Glidden, M.D., Danville, Ill.; University of Michigan, Ann Arbor, 1894; aged 45; a Fellow of the American Medical Association, and formerly president of the Vermilion County Medical Society; formerly chief surgeon of the Illinois Traction System; who had suffered for a long time from the results of Roentgen-ray exposure; died at his home, February 20.

George Meyers, M.D., New York; College of Physicians and Surgeons in the City of New York, 1886; aged 55; a Fellow of the American Medical Association and New York Academy of Medicine; well known as an internist; visiting physician to the Hospital for Deformities and Joint Diseases, New York, and the German Hospital; died at his home, February 14.

George Woodhull Emory, M.D., Bryan, Texas; Tulane University, New Orleans, 1894; University and Bellevue Hospital Medical College, New York, 1899; aged 46; a Fellow of the American Medical Association; who was shot as he stepped from a train in San Antonio, February 12; died from his wounds at the Robert B. Green Memorial Hospital a few hours later.

Robert August Koempel, M.D., New York; New York University, New York, 1887; aged 60; also a graduate in pharmacy and a veterinary surgeon; died in the Botanical Gardens of the New York Zoological Park, February 14, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

Irenaeus Maybury Shepherd, M.D., Trenton, N. J.; University of Pennsylvania, Philadelphia, 1892; aged 49; a Fellow of the American Medical Association; a member of the visitink staff of Mercer and St. Francis' hospitals, Trenton; medical inspector of the Trenton Board of Health for several years; died at his home, February 13, from cerebral hemorrhage.

George Miller Shillito, M.D., Pittsburgh; Jefferson Medical College, 1868; aged 76; a Fellow of the American Medical Association; for many years a member of the staff of the Allegheny General and St. Francis' hospitals; physician to the Allegheny City Home, and a director of the Fourth Ward Allegheny public schools; died at his home, February 14.

John Sidney Gray, M.D., Winnipeg, Man.; McGill University, Montreal, 1876; aged 67; secretary of the College of Physicians and Surgeons of Manitoba and professor of gynecology in the Manitoba College of Medicine, Winnipeg; for thirty-five years a member of the staff of the Winnipeg General Hospital; died at his home, February 11.

William G. Jameson, M.D., Palestine, Texas; Missouri Medical College, St. Louis, 1878; aged 60; a Fellow of the American Medical Association; for twenty years chief surgeon of the International and Great Northern Railway; a member of the National Association of Railway Surgeons; died at his home, February 12, from heart disease.

Braxton D. Cox, M.D., Campton, Ky.; Kentucky School of Medicine, Louisville, 1889; aged 72; a Fellow of the American Medical Association and formerly president of the Breathitt County Medical Society and Kentucky Valley Medical Association; a veteran of the Civil War; died at his home, February 13, from disease of the liver.

Edward Woodbridge Avery, M.D., Brooklyn College of Physicians and Surgeons in the City of New York, 1862; aged 76; a veteran of the Civil War, in which he served both in the navy and army, and later in the German service during the Franco-Prussian War; died at his home in Brooklyn, February 13, from pneumonia.

George W. Mitchell, M.D., Denver; Jefferson Medical College, 1860; aged 83; surgeon of the One Hundred and Nineteenth Pennsylvania Infantry, U. S. V., during the Civil War; died at the home of his son in Denver, February 7, from senile debility, following a fracture of the hip which occurred in October last.

James Morris Jenkins, M.D., Auburn, N. Y.; Syracuse (N. Y.) University, 1875; aged 67; a member of the Medical Society of the State of New York, and once president of the Cayuga County Medical Society; physician to the Auburn City Hospital; died at his home, February 3, from heart disease.

Stephen Elmer Palmer, M.D., Elmira, N. Y.; University of Michigan, Ann Arbor, 1872; aged 69; for thirty years a member of the Medical Society of the County of Chemung, N. Y., and of the Elmira Academy of Medicine; also a graduate in pharmacy; died at the home of his son in Elmira, February 9.

Louis Eugene Hollister, M.D., Newark, N. J.; University of Michigan, Ann Arbor, 1873; aged 68; a Fellow of the American Medical Association; local surgeon of the Lehigh Valley Railroad; formerly a member of the board of health and board of education; died at his home, February 15.

Harry F. Williamson, M.D., Paducah, Ky.; University of Louisville, Ky., 1896; aged 55; formerly a Fellow of the American Medical Association and president of the school board of Paducah; for two years city physician; died at the home of his sister in Paducah, February 9.

Minor M. Jacobs, M.D., Hamilton, Ohio; Miami Medical College, Cincinnati, 1888; aged 50; for several years a member of the board of health of Hamilton, and district physician of Lindenwald; also a druggist; died in Mercy Hospital, Hamilton, February 11, from heart disease.

Zadok Thomas Blackwell, M.D., Joplin, Mo.; Kentucky School of Medicine, Louisville, 1888; aged 58; a member of the Missouri State Medical Association; for several terms justice of the peace and for five years postmaster of Preston, Kan.; died at his home, February 10.

Morris Weil Brinkman, M.D., New York; University of Pennsylvania, Philadelphia, 1884; aged 57; a Fellow of the American Medical Association; a specialist on electrotherapeutics and inventor of many appliances in that specialty; died at his home, February 15.

Oscar Samuel Owens, M.D., Richmond, Va.; University of Maryland, Baltimore, 1905; aged 37; a member of the Medical Society of Virginia; for many years local surgeon to the Southern Railroad; died at the Retreat for the Sick, Richmond, February 8.

William H. Barnard, M.D., Anguilla, Miss.; Hospital College of Medicine, Louisville, 1877; aged 67; formerly a member of the Mississippi State Medical Association; treasurer of Sharkey County; was found dead at his home, February 13, from heart disease.

W. S. Harwood, Monroe City, Mo. (license, Missouri, 1883); aged 76; for more than fifty years a practitioner of Monroe County; formerly a member of the Missouri State Medical Association; died at his home, February 12, from heart disease.

John Thomas Parker, M.D., Stockton, Md.; New York University, New York, 1861; aged 77; surgeon in the Confederate service during the Civil War; a member of the legislature from Worcester County in 1870 and 1871; died at his home, February 7.

James R. Dewey, M.D., Chicago; Chicago Homeopathic Medical College, 1888; aged 85; also a lawyer; for forty-one years a teacher of Greek, Latin, geometry and astronomy in the West Division High School, Chicago; died at his home, January 31.

John Lenman Pollock, M.D., New Auburn, Minn.; Memphis (Tenn.) Hospital Medical College, 1911; aged 47; while making a professional call south of Hanley Falls, February 10, was caught in a severe blizzard and was found frozen to death.

Clarence Abbott, M.D., Otwell, Ind.; Kentucky School of Medicine, Louisville, 1898; aged 45; a Fellow of the American Medical Association; formerly trustee of Jefferson Township, Pike County; died at his home, about February 13.

Thomas H. Hallett, M.D., Clyde, N. Y.; University of Buffalo, N. Y., 1890; aged 56; a Fellow of the American Medical Association; president of the village of Clyde in 1890; died at his home, February 11, from pernicious anemia.

William Otho Bennett, M.D., Pittsburg, Kan.; Medical College of Indiana, Indianapolis, 1892; aged 56; formerly a member of the Kansas Medical Society; died in Mount Carmel Hospital, Pittsburg, February 5, from nephritis.

James Cyrus Black, M.D., Harrisburg, N. C.; University of Maryland, Baltimore, 1886; aged 59; a Fellow of the American Medical Association; died at his old home in Pioneer Mills, N. C., February 4, from acute gastritis.

Thomas Tobin, M.D., Tyrone, Pa.; University of Buffalo, N. Y., 1882; aged 61; a member of the Medical Society of the State of Pennsylvania; while making a professional call, February 13, died from cerebral hemorrhage.

W. N. Davis, Meehan Junction, Miss. (license, Mississippi, 1898); aged 54; a Fellow of the American Medical Association; physician to the Cotton States Lumber Company; died at his home, February 14, from pneumonia.

Edward Luther Parks, M.D., Boston; Jefferson Medical College, 1874; aged 67; a Fellow of the American Medical Association, and a specialist on diseases of the eye; died in the Boston City Hospital, February 8.

Robert Marshall White, M.D., Boston; Tufts College Medical School, Boston, 1910; aged 36; a member of the Massachusetts Medical Society; died at his home in Dorchester, Boston, February 13, from pneumonia.

Joseph G. West, M.D., Kemblesville, Pa.; University of Pennsylvania, Philadelphia, 1860; aged 82; a member of the state legislature from 1891 to 1893; school director for fifteen years; died at his home, February 10.

William M. Doores, M.D., Crab Orchard, Ky.; Missouri Medical College, St. Louis, 1851; aged 86; captain in the Confederate army during the Civil War; died in Crab Orchard, February 10, from senile debility.

James E. Robertson, M.D., Midvale, Utah; McGill University, Montreal, 1895; aged 44; a member of the Utah State Medical Association; died from heart disease while making a professional call, February 3.

John Edward Hoole, M.D., Somerville, Mass.; College of Physicians and Surgeons, Baltimore, 1903; aged 49; a Fellow of the American Medical Association; died at his home, February 15, from heart disease.

George Ernest Thomes, M.D., Port Chester, N. Y.; Medical School of Maine, Brunswick, 1886; aged 58; a Fellow of the American Medical Association; died at his home, February 12, from pleuropneumonia.

Udams E. Maulsby, M.D., Beaconsfield, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1887; formerly mayor of Sharpsburg, Iowa; died at his home, about January 18, from pneumonia.

Adelbert Schneider, M.D., Milwaukee, Wis.; University of Strassburg, Germany, 1885; aged 55; formerly a Fellow of the American Medical Association; died recently at his home in Berlin, Germany.

John C. McMillen, M.D., Falconer, N. Y.; Jefferson Medical College, 1879; aged 64; formerly a Fellow of the American Medical Association; died at his home, February 10, from pneumonia.

Charles Edward Barton, M.D., New York; New York University, New York, 1890; aged 59; a member of the Medical Society of the State of New York; died at his home, February 11.

Samuel Vail Wright, M.D., Greensburg, Ind.; Cincinnati College of Medicine and Surgery, 1871; aged 70; who fell a few days before, fracturing his hip; died at his home, February 14.

Carl J. Rollmann, Jr., M.D., Burr Oak, Mich.; Detroit College of Medicine and Surgery, 1906; aged 37; died at his home, January 8, from mitral stenosis.

Sheldon Pitcher, M.D., Detroit; Michigan College of Medicine and Surgery, Detroit, 1890; aged 54; died in Detroit, Nov. 19, 1916, from pleuropneumonia.

Lute Postle Lisle, M.D., Columbus, Ohio; Cincinnati College of Medicine and Surgery, 1878; aged 65; died at his home, February 6, from heart disease.

William Robert Hume, M.D., Oakland, Calif.; Oakland College of Medicine and Surgery, 1915; aged 39; died at his home, January 31, from pneumonia.

Annis Hyman Crawford, M.D., Williamsport, Pa.; Women's Medical College of Pennsylvania, Philadelphia, 1883; aged 60; died at her home, January 29.

Harvey Lindsey Harris, M.D., Bellflower, Ill.; Rush Medical College, 1875; aged 70; died at his home, February 2, from carcinoma of the stomach.

Oscar Joseph Karl Prinzler, Pittsburgh (license, Allegheny County, Pa., 1881); aged 81; a veteran of the Civil War; died at his home, January 16.

Aloysius Hoehn, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1876; aged 62; an invalid for several years; died at his home, February 3.

William Henry Allen, M.D., Pekin, Ill.; University of Buffalo, N. Y., 1870; aged 67; first health officer of Pekin; died at his home, January 31.

Almus Pratt Evans, M.D., Concord, N. H.; Hahnemann Medical College, 1887; aged 56; died at his home, January 26.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DATING OF BIOLOGIC PRODUCTS

Report of the Council on Pharmacy and Chemistry

For the protection of the consumer, as well as the manufacturer, the Council on Pharmacy and Chemistry has adopted a rule requiring that serums, vaccines and similar products to be accepted for New and Nonofficial Remedies must bear on each package the date of its manufacture in addition to the date required by federal law. In explanation of this action the Council has authorized publication of the report which appears below. W. A. Puckner, Secretary.

The practice now followed by manufacturers of placing on the containers of biologic products the dates beyond which these agents are not to be regarded as dependable (though in accordance with the federal law governing interstate traffic) has not been uniformly satisfactory to either manufacturer or physician.

For diphtheria and tetanus antitoxins there are definite official potency standards readily determinable by dependable tests. Consequently the dates on packages of these antitoxins mean that the manufacturer vouches for their potency up to the time indicated, assuming that they have been kept under proper conditions. There are no methods, however, for determining the potency of the great majority of serums and vaccines, particularly the bacterial vaccines. Moreover, while we do not know the exact effect of age on these substances, there is sufficient reason for preferring a fresh product to one of uncertain age.

Probably the most important factor in the preservation of such potency as these agents possess is the temperature at which they are kept; low temperatures, such as are obtained in cold storage, favor conservation, while ordinary room temperatures contribute to deterioration of their specific properties. Manufacturers, generally, are careful about the proper keeping of biologic products while in their hands; but they have no control over the preparations after they are placed on the market, though a commendable effort is made on the part of some manufacturers to follow up and safeguard their preparations.

The lack of uniformity in the dating of these products is very striking. For the same material, one manufacturer will fix an expiration date of four months, others, one year or even eighteen months. Obviously this lack of uniformity is unfair to the manufacturer who endeavors to supply a product as fresh as is commercially practicable, and it also may lead the physician to form a false opinion regarding the potency of certain biologic products.

That the physician may know the age of a given product when it reaches him, and that he may be in position to judge whether it has been kept unduly long under conditions which are deemed unfavorable, the Council on Pharmacy and Chemistry has passed a resolution requiring that, in order to be accepted for New and Nonofficial Remedies, biologic products must have placed on the package also the date of manufacture. Since there is no potency standard for biologic products other than for diphtheria and tetanus antitoxins, the term "date of manufacture," or, at the pleasure of the individual manufacturer, "date of issue," "manufactured" or "issued," shall be acceptable in accordance with these conditions:

The terms "Date of Manufacture" or "Manufactured" or "Date of Issue" or "Issued" to be used:

1. For products for which an efficient potency standard exists, the date of testing shall be taken as the date of manufacture. For vaccine virus date of satisfactory potency test shall be taken.

2. For other products of animal origin, the date of removal from the animals (e. g., bleeding, in case of serums) shall be taken as the date of manufacture.

3. For products of bacterial origin, the date of the killing of the bacteria shall be taken as the date of manufacture; while for other products, such as those of plant origin (pollen extracts), the date of completing the preparation of the product shall be taken as the date of manufacture.

The terms "Date of Issue" or "Issued" to be used:

When adequate cold storage facilities are available to indicate date of removal from cold storage in accordance with the following: Product may be kept for not to exceed one year at or below +5°C, or for not to exceed six months at or below +8°C, or for not to exceed three months at or below +15° C. This section does not apply to living viruses excepting that vaccine virus may be stored at or below +5° C for not to exceed three months.

This measure, besides safeguarding the public, will prove helpful alike to the conscientious manufacturer and to the physician.

CLEANER ADVERTISING

The Lexington (Ky.) Leader Takes an Inventory

The movement toward cleaner advertising and especially toward truthful advertising grows apace. The subject of clean advertising cannot be raised without "patent medicine" advertising obtruding itself, for it has long been recognized by advertising men that publicity at its worst is to be found in the "patent medicine" field. It is for this reason that the defenders of the nostrum interests can never discuss the "truth in advertising" movement and especially the activities of the various vigilance committees of the Associated Advertising Clubs of the World without becoming incoherent.

A year and a half ago the Lexington *Leader* decided that it wanted to be a newspaper "which can be read aloud in the family circle, in mixed company, without embarrassment, by any member of the family, young or old, boy or girl." It found that its ambition in this direction "could not be realized if the general run of patent medicine advertising was accepted." The problem thus clarified, the paper determined practically to eliminate all "patent medicine" advertising. On the last day of the old year the *Leader* took a mental inventory of its condition and gave the results in an editorial from which we quote in part:

> "August 1, 1915, a little less than a year and a half ago, it was determined by the management to close the advertising columns of the Lexington *Leader* to the general run of patent medicine advertisements and to advertisements of intoxicating spirits, distilled and fermented.
>
> "Since that date the *Leader* has rejected offers of advertising of this character to the amount of 16,625 inches. This, at the present rate of foreign advertising, would have increased the gross revenue of the newspaper $4,156.25.
>
> "On and after January 1, 1917, the advertising columns of the *Leader* will be absolutely free from all advertising of this nature which does not measure up to the high standard established by the management.
>
> "The management of the *Leader* is ambitious to publish a newspaper which can be read aloud in the family circle, in mixed company, without embarrassment by any member of the family, young or old, boy or girl, this rule to apply to both the news and the advertising columns of the paper.
>
> "It was found that this ambition could not be realized if the general run of patent medicine advertising was accepted, hence it was determined to practically eliminate all of this class of publicity.
>
> "This revolutionary, and at the same time very expensive, change of policy by the Lexington *Leader*, it is confidently believed, will be appreciated by both the home reader and the home advertiser. There is a growing demand for a newspaper that is 'One Hundred Per Cent. Clean—One Hundred Per Cent. Trustworthy'."

In the same editorial the *Leader* gave a list of advertising contracts which had been offered to and rejected by it since it inaugurated its new policy, together with the number of inches of space called for in each contract. The list is too long to reproduce in full but some of the larger items are worth noting. Here they are:

	Inches		Inches
"Nuxated Iron"	500	"Reserve Remedy Company"	2142
"Swamp Root"	500	"Tanlac"	2500
"Wine of Cardui"	1000	"Lydia Pinkham"	3000
"Haarlem Oil"	1071		

There are many other items in the list that are of interest to those who are familiar with the facts concerning various quack remedies. We find, for instance, that the *Leader* rejected advertisements of Charles A. Tyrrell, the exploiter of the "J. B. L. Cascade," a device whose advertisements are accepted by magazines whose pretensions in the interests of the public health are greater than their performances, "Mayr's Stomach Remedy," the "Eckman Alterative" consumption "cure," "Duffy's Malt Whiskey," "King's New Discovery"—these are among many other products which the *Leader* in its desire to publish a newspaper that would not be an embarrassment in the family circle found it desirable to debar from its advertising pages. Nor has this strictness resulted in the commercial ruin of the Lexington *Leader* for in another part of the editorial quoted above we read:

> "It is extremely gratifying to the *Leader* management to be able to state that, notwithstanding the large amount of what this newspaper considers undesirable advertising rejected during 1916, the volume of foreign advertising has steadily increased and will show a net gain for 1916 over 1915."

Above its editorial page the Lexington *Leader* carries this quotation: "The false can never grow into truth by growing into power." Applying it to the "patent medicine" business, one might search far to find a more appropriate sentiment.

Correspondence

Compulsory Health Insurance

To the Editor:—The letter on this topic by Dr. W. D. Chapman (The Journal, Feb. 17, 1917, p. 566) contains one or two errors which I wish to correct.

In this country about one tenth of the 30,000,000 workers are organized, and of the organized workers only about 548,000, or one fourth, are insured for sick benefits through the international trade unions, and not one tenth of all the workers, as your correspondent states. As a matter of fact, voluntary insurance against sickness is far less developed in this country today than it was in Great Britain prior to the passage of the national insurance act.

The free choice of physician, for which German physicians have been contending and which the British doctors gained at the outset, is already a provision of the health insurance bill which is being introduced in the legislatures of the leading industrial states.

Even if preventive medicine and the extended use of medical charities could provide the same medical care as that offered by health insurance, the worker, without insurance, is too often left without resources with which to meet the financial burden of sickness. Both medical and cash assistance are needed by the worker.

John B. Andrews, New York.
Secretary, American Association for Labor Legislation.

Coagulation Time of the Blood in Pneumonia

To the Editor:—The article on this subject by Drs. Minot and Lee (The Journal, Feb. 17, 1917, p. 545) calls for brief comment. Since the observations reported in the paper by Dr. Meeker and myself on "Coagulation Time in Lobar Pneumonia, with Statistics and an Experimental Study of Its Causes" (The Journal, Nov. 25, 1916, p. 1591) were carried out in my hospital service, I hasten to assume all responsibility for errors both as to the method employed and the results obtained. In our paper, the reason the blood was taken from the ear lobes and finger tips was thus stated: "It was feared that an unwarranted degree of discomfort would be caused by venipuncture at intervals of twenty-four hours in patients suffering from lobar pneumonia."

Subsequently, as it was found that it was quite practicable to tap a vein with a platinum needle without an objectionable degree of annoyance to the sufferer from lobar pneumonia, the blood was drawn directly from the vein so as to eliminate the possible interference with the test from admixture of the "tissue juices." So far as the criticism of the method employed in the observations previously recorded is concerned, therefore, I have no fault to find with my critics, but I still feel strongly that science demands future verification of their statement that "the coagulation time of blood in pneumonia is generally prolonged."

The results of daily observations in ten cases made on blood drawn from the veins in my service at the Medico-Chirurgical Hospital, since the publication of the joint paper by Dr. Meeker and himself, show an abbreviation of the coagulation period, and hence confirm those obtained by using blood derived from the ear lobe and finger. These and future findings will be made the basis of another paper at a later date.

J. M. Anders, M.D., Philadelphia.

"A Medical Commission with No Medical Man on It"

To the Editor:—In Current Comment (The Journal, Jan. 27, 1917, p. 292), under this heading, you refer to Mrs. Axtell as follows: "a Mrs. Axtell of Bellingham, Wash., a social worker and a defeated candidate for Congress." I cannot think any reflection was intended or meant to be implied in this comment. I trust you will publish this together with your denial that any reflection on Mrs. Axtell was intended.

W. H. Axtell, M.D., Bellingham, Wash.

[Comment.—It was the principle, not the persons, that was discussed in the comment in The Journal. We are also informed that Mrs. Axtell has had twenty-five years of service in social work, and was formerly a member of the Washington state legislature.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HEXAMETHYLENAMIN WITH SODIUM ACID PHOSPHATE

To the Editor:—1. Hexamethylenamin when administered in the treatment of cystitis or pyelitis acts as a urinary disinfectant in acid urine. Occasionally the urine in such infections is found alkaline, neutral or only slightly acid to litmus. Would it not be theoretically good therapeutics to prescribe hexamethylenamin in such cases with some drug which renders the urine acid?

2. Bastedo's Materia Medica, Pharmacology and Therapeutics, p. 478, says:

> "Jordan (1911) gave 10 grains (0.7 gm.) [hexamethylenamine] three times a day and found that when the urine was alkaline or of low acidity there was no germicidal effect. When the urine was alkaline he could obtain the effect by administering *acid sodium phosphate* to acidify the urine and when the urine was acid he could lessen the effect by administering potassium citrate."

I cannot find the acid sodium phosphate listed as a drug. *Is it so used? If so,* what is the dosage? Chemically it is a monobasic salt, H_2NaPO_4 plus water. What other drugs acidify the urine?

K. R.

Please omit my name.

Answer.—1. Yes.

2. New and Nonofficial Remedies describes sodium acid phosphate, and lists the following brands of this drug:

Sodium Acid Phosphate-*M. C. W., Mallinckrodt* Chemical Works, St. Louis.

Sodium Phosphate Monobasic-Merck, Merck & Co., New York.

Sodium Acid Phosphate-Squibb, E. R. Squibb and Sons, New York.

Sodium Acid Phosphate, Monobasic-P. W. R., Powers-Weightman-Rosengarten Company, Philadelphia.

The dose of sodium acid phosphate is from 1 to 1.5 gm. repeated frequently until the urine becomes acid. It may be administered in sweetened water like lemonade. It should not be prescribed in solution with hexamethylenamin.

SONDERN'S LINE OF RESISTANCE AS AID TO PROGNOSIS

To the Editor:—What is Sondern's line of resistance mentioned in The Journal, Feb. 10, 1917, p. 496?

E. H. B.

Answer.—F. E. Sondern over ten years ago emphasized the importance of the differential leukocyte count in differential diagnosis, but above all in estimating the resisting powers of the organism. He said that the rise in the relative percentage of polymorphonuclears shows the increasing absorption of toxins, and the rise in the numbers of leukocytes shows the fight the body is putting up against the infection. When both rise parallel there is less to fear than when the relative polymorphonuclear percentage outstrips the leukocytes. A chart for the curves, according to the suggestion of C. L. Gibson (*Annals of Surgery*, 1906, **43**, 485), has the leukocyte scale on the left and the polymorphonuclear scale on the right, the chart being divided into 1 sq.cm. squares, each centimeter representing 1,000 leukocytes on the left scale and 1 per cent. polymorphonuclears on the right side, starting from a horizontal line, one end of which represents a leukocytosis of 10,000 and the other end a relative polymorphonuclear proportion of 75 per cent. A line drawn between the corresponding dots showing the leukocyte findings and the polymorphonuclear percentage at each examination gives insight into the processes going on in the body. The vertical difference in centimeters between the levels can be called the index of resistance. The more nearly horizontal, the better the outlook.

SCHLOSS MILK

To the Editor:—Please give me the formula and method of making Schloss milk. I should also appreciate references to detailed articles written concerning it.

F. T. Billings, M.D., Pittsburgh.

Answer.—The following is a formula for Schloss whey modified milk:

For infants under 3 months:

Twenty per cent. cream	140 c.c.
Full milk	140 c.c.
Water	700 c.c.
Potassium chlorid	0.2 gm.
Dextrin and maltose	35 *gm.*
Flour	15 gm.
Nutrose	5 gm.

For infants over 3 months:

Twenty per cent. cream	140 c.c.
Full milk	140 c.c.
Water	700 c.c.
Potassium chlorid	0.2 gm.
Dextrin and maltose	50-70 gm.
Nutrose	5 gm.

These are intended to make 1 liter (quart) of the mixture. *It contains the same percentage of salts and fats as human* milk, but less protein and less sugar, without the dextrin and maltose and the nutrose. If flour is added it must be boiled with the sugar, casein preparation and water for fifteen minutes. If no flour is used the mixture is simply brought to the boiling point.

The details and formula for making Schloss whey modified milk will be found in J. S. Leopold's article in the *American Journal of Diseases of Children,* September, 1914, together with a report on its use in a number of cases. References to the literature on this form of feeding are as follows:

Schloss, E.: *Ueber Sauglingsernährung, monograph,* Berlin, S. Karger, 1912.

Leopold, J. S.: Experiences with Whey Modified Milk in Infant Feeding. *Am. Jour. Dis. Child.*, September, 1914, p. 196; *Arch. Pediat.*, January, 1914.

Gellhorn, W.: Casein-Milk Feeding in Infancy and Childhood, The Journal, Sept. 4, 1915, p. 853. In this article various methods, including that of Schloss, for modifying milk in infant feeding are discussed.

Legal Status of Nurse as Anesthetist.—*As yet the number* of court decisions on record is not sufficient to show whether graduate nurses may, with impunity, practice as anesthetists. The opinion of lawyers in New York state is that surgeons may employ women in the capacity named, but that in doing so they, the surgeons, assume liability for the result. If the administration of anesthetics is a part of the practice of medicine, anesthetics may be administered only by responsible licensed physicians. If a surgeon chooses to employ an anesthetist having no legal medical qualification, he thereby tacitly assumes full responsibility for and undertakes to control the anesthesia, the anesthetist being regarded merely as his technical assistant.—S. S. Goldwater, M.D., *Modern Hospital,* November, 1916.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

Colorado: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Regular: New Haven, March 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeo.: New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, March 6. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

Maine: Portland, March 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 26-28. Sec., Dr. J. A. B. Adcock, 325 E. High St., Jefferson City.

Montana: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

Rhode Island: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Wyoming: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of the State of Montana, reports the written examination held at Helena, Oct. 3-5, 1916. The total number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 25, of whom 17 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett College of Eclectic Medicine and Surgery	(1907)	75.2
Chicago College of Medicine and Surgery	(1916)	77.1
Hahnemann Med. Coll. and Hosp. of Chicago	(1908)	83.8
Northwestern University Woman's Medical School	(1900)	78.3
Rush Medical College	(1914)	83.5
Baltimore University	(1898)	78.2
Johns Hopkins University	(1914)	84.8
University of Michigan Medical School	(1916)	77.7
University of Minnesota	(1916)	82
Barnes Medical College	(1906) 80.5; (1911)	78.8
Washington University	(1916)	80.7
Dartmouth Medical School	(1891)	79.3
Cleveland College of Physicians and Surgeons	(1910)	82.7
Starling-Ohio Medical College	(1913)	83.9
Marquette University	(1915)	79.2
Milwaukee Medical College	(1909)	77.4
FAILED		
George Washington University	(1916)	74.3
Chicago Coll. of Med. and Surg.	(1915) 71.5; (1916)	71.5
Northwestern University	(1910)	74
Rush Medical College	(1897)	73
Fort Wayne College of Medicine	(1892)	52.4
Ensworth Medical College	(1910)	73.8
Laval University	(1913)	64.7

New Mexico October Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that one candidate was licensed through reciprocity and eleven candidates were licensed on satisfactory credentials, Oct. 9-10, 1916. The following colleges were represented.

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of the South	(1909)	Tennessee

College LICENSED ON SATISFACTORY CREDENTIALS	Year Grad.	Total No. Licensed
Arkansas Industrial University	(1895)	1
University of Colorado	(1916)	1
Atlanta Medical College	(1914)	1
Baltimore University	(1902)	1
John A. Creighton Medical College	(1907)	1
University of the City of New York	(1893)	1
North Carolina Medical College	(1910)	1
Cleveland College of Phys. and Surgs.	(1914)	1
Western Pennsylvania Medical College	(1891)	1
University of Toronto	(1897)	1
National School of Medicine, Mexico	(1897)	1

Book Notices

Feeding the Family. By Mary Swartz Rose, Ph.D., Assistant Professor, Department of Nutrition, Teachers College, Columbia University. Cloth. Price, $2.10. Pp. 449, with illustrations. New York: The Macmillan Company, 1916.

More and more attention is being given to the relation of diet to disease and to health. The requirements of a satisfactory diet are varied: they include not only a sufficient number of calories, but also a variety of food which shall stimulate the appetite, a number of esthetic considerations which make food more attractive, and numerous relations to the health of the body. The author has apparently had in mind all these considerations in the preparation of her book. The first chapter is devoted to a consideration of the calories necessary to fulfil the fuel requirements of the body and to the mineral content of ordinary foods to fill such requirements. The next chapter is devoted to the digestive organs and the variation of diet to avoid disturbances of intestinal action. The following chapters are classified according to the requirements of the various members of the family; for example, food for the adult man, the adult woman, the baby, the child of 2, 3, 5 and 8 years, of adolescence, and for the aged. The whole is then grouped under the question of food for the family, and this is considered in relation to the menus and cost of food and various special dietaries. The latter part of the book considers food for the sick and the convalescent. Here will be found the answers to many questions which may arise in the mind of the physician who is compelled to supply diets for patients with various conditions. The book is useful and attractive, and can be employed with advantage in the physician's home as well as to the benefit of his patients.

Blood-Pressure from the Clinical Standpoint. By Francis Ashley Faught, M.D. Second Edition. Cloth. Price, $3.25 net. Pp. 478, with illustrations. Philadelphia: W. B. Saunders Company, 1916.

Dr. Faught's book offers a practical guide to the use of the sphygmomanometer and the clinical determination of blood pressure. It includes also a general discussion of the interpretation to be placed on blood pressure determinations. The author has combed the literature thoroughly, as is evidenced by numerous references to the most recent periodical literature. So much has recently been written concerning blood pressure that many of the observations of yesterday no longer apply. For this reason Dr. Faught suggests that "the purely scientific investigator should not be too critical of the conclusions drawn" as "the chief effort has been to reduce a very large and complicated subject to a practical working basis."

A Treatise on Diseases of the Skin for Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology in the Jefferson Medical College. Eighth Edition. Cloth. Price, $6.50 net. Pp. 1309, with 389 illustrations. Philadelphia: W. B. Saunders Company, 1916.

A number of new subjects, among the most important of which is that of occupational dermatoses, have been added to this standard work. It has been revised by the elimination of some old cuts and the addition of many new ones, the deletion of obsolete matter, and the correction of the text wherever necessary to bring its statements into accord with recent observations. It is, therefore, as in past editions, a dependable work on diseases of the skin, to which the practitioner may refer with the assurance that he is being correctly informed and well guided in this branch of his practice.

Mother's Guide in the Care of Her Children. By Dr. Sigmund A. Agatston, Lecturer on Diseases of Children at the New York Polyclinic Medical School. Cloth. Price, 50 cents. Pp. 85. New York: James T. Dougherty, 1916.

This book is apparently a collection of the author's notes on the care of children. It contains much material of value loosely classified, but well indexed so that the mother may seek out the answer to any question which may arise. The book is not so complete or so well organized and prepared as many others already available. Its chief recommendation is its small price.

Social Medicine, Medical Economics and Miscellany

Confessions of a Chiropractor

An article—actually as an advertisement—in the Ogden (Utah) *Examiner,* Oct. 1, 1916, evidently intended as an argument in favor of chiropractic, contains statements which show how little use "healers" of that branch have for education. Preliminary education is foolish, nay burdensome. Note the following:

> Education which has no relation to the theme or subject under consideration becomes burdensome and therefore detrimental.

Greek and Latin, for example, are

> Both dead tongues and, outside of those engaged in translating manuscripts, are used only to display pedantry; they are of no value to chiropractors.

This is especially worth nothing:

> They would compel us to study bacteriology. This is of no value to the chiropractor. It is not worth while to spend time, energy and money to microscopically examine infinitesimal mites or to group and classify them.

Of course, there is no such thing as blood poisoning, or infections; diphtheria and its cure with antitoxin are fabrications from some overworked anemic intellect, and even if there are contagious diseases, smallpox, spinal meningitis, *infantile paralysis* or others, all, *forsooth,* may be cured by the magic touch of the chiropractor applied to the patient's *spine. Why bother one's head regarding microbes?* As to materia medica, oh, horrors!

> We would also be required to learn "materia medica." What on earth would we do with that ponderous knowledge, we who abhor the very name of drugs and repudiate their use?
>
> There is also chemistry, which has nothing in common with chiropractic and cannot be made an adjunct to it.

Evidently education generally has "nothing in common with chiropractic" or is it that chiropractic has nothing in common with education?

> Greek, Latin, bacteriology, chemistry and materia medica would be of no more use (to chiropractors?) than a whipsocket would be in an automobile or a smoke stack to an aeroplane.

What on earth is the use of spending four years in high school, two years in college, four years in a medical school and a year or more as an intern in a hospital and getting all that "burdensome and detrimental" knowledge, when you can become a full-fledged chiropractor, and after three months or possibly less of correspondence study have the right to treat the sick!

All of this reminds one of the old adage that "A wise man knows a fool because he has once been foolish, but a fool cannot know a wise man because he has never been wise."

Payment for Treatment of Venereal Disease

H. Schönheimer (*Deutsch. med. Wchnschr.,* Oct. 5, 1916, p. 1232) expatiates on the spread of venereal diseases since the war, and the necessity for systematic and thorough treatment, accessible to all who need it, in order to protect others. The treatment should include infected wives. The question now is, Who is to pay for this, and how shall *it be paid?* Overcrowding and inadequate remuneration will necessarily entail inadequate treatment. The Invaliditätversicherung, or department of social insurance, seems to be the party to pay for the medical work, and a tentative agreement has been made in the Rhine province between this Landesversicherungsanstalt and the organized profession, the Aerztekammer, for treatment of the insured who are not enrolled in the Krankenkassen. According to this agreement, each treatment is to be paid for separately, but the total to be paid for a six weeks' course of treating syphilis is not to exceed 75 marks. For chronic gonorrhea there are to be not more than three treatments a week, with the catheter, rinsing the bladder or massaging. For the first two injections of salvarsan, 10 marks each; the following, 5 marks, and *not more* than six in the course. For each injection of mercury, 2 marks; for each examination of the urine (including microscopic), 2 marks; written reports, dilatations and massaging the prostate, each 3 marks.

In Berlin there is talk of an agreement by which a lump sum of 7.5 marks is to be paid by the month for the treating of each case. This is less than the social insurance contract rate of 5 marks a year, for this is per capita for all the insured, the well as well as the sick, while effective treatment of venereal disease requires intensive measures for a month. Schönheimer adds: "Of course there have been threats that if the local physicians decline these terms, others will be imported at a fixed salary; but the days are past, thank heaven, when it was possible to intimidate physicians with this threat. The arrangement would be discredited at once before the public if it should be put through exclusively with low-grade. It is for us to watch over the first steps in this comparatively new field. There is much to be done if the evil is to be rooted out. There are other affections, besides the venereal, the combating of which is an urgent task for the public welfare. This should all be done with the glad cooperation of physicians, but it should not be at the cost of their financial ruin."

The Faddist

We are a nation of cultists and faddists—any new doctrine becomes a rallying point for a body of devoted followers who enthusiastically propagate their hobby, even though it be so inordinately ridiculous as to demand the attention of the alienists. Medicine has suffered particularly from these peculiar minded advocates. "Sinapis" in the *Medical Press and Circular,* considering a recently published pamphlet on "Human Temperaments," by Dr. Charles Mercier, says that Mercier is properly scornful about the man who treats a disease and fails to treat his patient. "He pleads for a hearing, if not for honor, for the ancient physicians who studied the mental qualities 'occurring in groups' to which they gave the name temperaments." Particularly pointed are the observations of Mercier on the faddist.

> Of the positive fads, the most numerous are those which are supposed, on very insufficient evidence, to contribute to health. The health faddist eats strange food. He lives on fruit and nuts, or toast and water; his fruit and nuts, or whatever the faddy food is, must come from a particular source of supply and be of a particular brand. His beverage must be measured to the thimbleful. If he drinks tea, it must draw for so many seconds by a stop-watch, and the milk must be sterilized. He wears strange clothes; he must or must not wear certain fabrics next his skin; his clothes must be of special material, of a special brand, and must be made by a certain tailor and no other. He wears no hat, or his hat must be of a faddy shade or faddy material, or both. He has a certain ritual of exercises; breathing exercises, exercises to strengthen the lungs, the heart, the stomach, the liver, the arms, the legs, and the rest of him; and this ritual he performs daily with all the zeal of a religious devotee, for to him it is a religion. He must chew each mouthful so many times, and cannot talk at meals because he is engaged in counting the movements of his jaws. *All this* he does to preserve a life that is not worth preserving: to keep *in health* a body that serves no useful purpose. His motto is: *Propter vitam vivendi perdere causas.*

Eclampsia Rare on War Diet in Germany

According to an abstract in a Danish exchange, the statistics from the largest three maternities in Berlin show that eclampsia is comparatively rare at present. The proportion has dropped in one maternity from 2.6 per cent. of 2,004 childbirths in 1913 to 0.8 per cent. of 1,430 in ten months of 1916; in the Charité, from 2.4 per cent. of 3,570 births to 0.57 per cent. of 1,400, and at the Virchow Hospital from 1.2 per cent. of 3,664 childbirths to 1 per cent of 2,462. Warnekros and Ruge ascribe this reduction of the number of cases to the changes in the diet imposed. In the cases in which eclampsia occurred, it was mild and brief, practically abortive. In the one exception, a quite severe case, it was found that the woman's husband, being a diabetic, had secured large extra amounts of meat and butter. The tables given show that the number of cases of eclampsia was less in 1913 than in the year or two before, a gradual decline being evident; but, since the war began, the drop has been at the Charité 75 per cent., and at the women's clinic over 66 per cent. The conclusion seems inevitable that *restriction* of fat and meat tends to ward off eclampsia.

Medicolegal

Medical Practice Act Constitutional—Herbalists Must Have Certificates

(Ex parte Chow Juyan (U. S.), 235 Fed. R. 1014)

The United States District Court, in California, in denying the petitions for writs of habeas corpus of several Chinese who practice the art of healing by the use of herbs, says that the petitioners were convicted in the state courts of practicing without the medical certificate required in California by the act of June, 1913, the conviction was upheld by the district court of appeal, and an application to the Supreme Court of California for a writ of habeas corpus was denied, after which a similar application was made to this court. The basis of the petitions was the alleged unconstitutionality of said act for a number of reasons. It was claimed that the title is defective; but such defect, if it exist, is one solely under the state constitution, and the courts of the state have held the act to be valid. It was further urged that the act is unconsitutional because of its provisions regulating drugless healers, in that it defines the drugless practitioner as one who treats diseases without the use of drugs and without in any manner severing or penetrating any of the tissues of human beings except the severing of the umbilical cord. The argument was that such practitioners do continually by manipulation and adjustment sever the tissues of human beings in using their particular mode of treatment. The district court of appeal disposed of this contention by the statement that it is evident from the whole context that the word "sever" as therein used means a severance by cutting. In addition, it may be said that the petitioners are not drugless practitioners, and the provision in question does not affect them. It was also urged that the act is unconstitutional as applied to the petitioners because it gives to the board of medical examiners the power arbitrarily to determine the fitness of applicants for certificates and the standard of colleges as a matter of mere personal approval, without regard to any standard fixed by the legislature itself, and that such delegation of power is unconstitutional. But such delegation, even if conceded, contravenes no provision of the constitution of the United-States, nor any law of Congress, that has been called to this court's attention. Whether or not it contravenes a provision of the state constitution is a matter within the cognizance of the courts of the state, and they have held that it does not. It was also urged that the act interferes with interstate commerce because it prohibits or unduly burdens the sale of imported herbs. But it does not prohibit the sale of such herbs, and, if it burdens such sale, it is only because the seller, in addition to selling the herbs, acts also as a physician in prescribing their use, and the prescribing is burdened to the extent that the prescriber must have the medical certificate required. It is not Chinese herbalists alone who must secure such certificate, but all herbalists; that is to say, all persons who treat others by the use of drugs, whether exclusively herbal drugs, or otherwise. There appears no reason why this court should interfere with the enforcement of the act in question.

Narrowing Construction of Medical Practice Act

(State vs. Fite (Idaho), 159 Pac. R. 1183)

The Supreme Court of Idaho reverses, with instructions to dismiss the action, a judgment pronounced against the defendant, a chiropractor, on his conviction of having practiced medicine within the state without having obtained a license so to do. The court says that the practice of medicine in Idaho is regulated by Chapter 17, Title 8, of the political code (Sections 1341 to 1356 inclusive). Section 1353 provides: "Any person shall be regarded as practicing medicine and surgery, or either, who shall advertise in any manner, or hold himself or herself out to the public, as a physician and surgeon, or either, in this state, or who shall investigate or diagnosticate, or offer to investigate or diagnosticate, any physical or mental ailment of any person with a view to relieving the same as is commonly done by physicians and surgeons, or suggest, recommend, prescribe or direct, for the use of any person, sick, injured or deformed, any drug, medicine, means or appliance for the intended relief, palliation or cure of the same, with the intent of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsoever. . . ." The proper interpretation of that section is the court's chief concern in this case. The apparent lack of harmony among the reported cases may be accounted for, to a considerable extent at least, by the difference in the language employed by the different legislatures in formulating statutes on the subject. These statutes may be divided into two classes: (1) Those which seek to prevent the use of drugs, medicines, surgical instruments and appliances by persons unskilled in their use, and (2) those which seek to prevent the practice, or pretended practice, of the healing art, in any manner, by persons who do not possess sufficient educational qualifications to enable them to pass a medical examination such as is prescribed by a board of medical examiners provided for by law. The statute of Idaho here under consideration belongs to the former classification. Constitutional provisions and statutory enactments should be read and construed in the light of conditions of affairs and circumstances existing at the time of their adoption. The law of Idaho regulating the practice of medicine and surgery, of which Section 1353 is a part, was enacted by the legislature in 1899. Up to that time no provision had been made for the appointment of a state board of medical examiners, or for subjecting applicants for a license to practice that learned profession to an examination touching their educational qualifications to do so. At that time chiropractic was unknown in the state, and but little, if anything, was known of osteopathy. Those who offered to heal the afflicted were either graduates of reputable schools of medicine and surgery, or were mere pretenders who assumed to practice that profession without having so graduated. It seems to the court to be perfectly clear that the legislature, recognizing drugs and surgical instruments to be dangerous in the hands of the unskilled, sought, by the enactment of Chapter 17, Title 8, of the political code, to reach and prohibit the pretenders rather than practitioners of branches of the healing art which had not yet come into existence, or were, at least, unknown in Idaho. Subsequent legislatures seem to have adopted this view, for, in 1907, a law regulating the practice of osteopathy was enacted; also one regulating the practice of optometry; and in 1911 an act was passed providing for and regulating the examination and registration of graduate nurses and fixing their qualifications. The legislature has given to the clause contained in Section 1353, "as is commonly done by physicians and surgeons," controlling force, and has limited the prohibition contained in the chapter in question to persons who would attempt to practice medicine and surgery without first having obtained a license so to do by the words "physicians and surgeons," as those words were used and commonly understood by the people of Idaho at the time the law was enacted. The court believes this to be a correct interpretation of that statute, and that it was the intention of the legislature which enacted it that it should be so limited. Wherefore the court concludes that the practice of chiropractic is not the practice of medicine and surgery as defined in Section 1353, and that the defendant was erroneously convicted.

Patient Not Bound to Let Surgeon Failing Once Perform Second Operation

(Atlas Portland Cement Co. vs. Hagen (U. S.), 233 Fed. R. 24)

The United States Circuit Court of Appeals, Eighth Circuit, in affirming a judgment in favor of plaintiff Hagen for damages for personal injuries sustained in the service of the defendant company, says that the company asked the giving of an instruction that: "The court instructs the jury that the defendant is not responsible for any injury to plaintiff caused by any act, operation, or conduct of plaintiff's physicians or surgeons." This instruction was refused. It was erroneous on its face, but especially so as shown by the record. The plaintiff testified, and the jury had a right to believe, that the company's surgeon set his limb; that one day, when they were putting him on a bed pan, he felt the bones slip. This was three days after the injury. He called the attention of the surgeon and the nurse to it, but the surgeon did not even make an examination. The plaintiff remained at the hospital six weeks, and was then taken home and remained there a week. At the end of five weeks the bandages were taken off. The surgeon took him home and then pronounced the leg in good shape. In a day or two he came back and the leg was bent, and the next day he again called and wanted to break the leg again. After seven weeks of suffering with this broken leg, more than six weeks after it slipped and the surgeon had been notified, and a bony union had been formed, the plaintiff was justified in declining to let the same surgeon break it again and operate further. The plaintiff simply told the surgeon that he could not break it again, and the surgeon then turned the case over to another physician; but, before this, at a conference of the surgeon and several other physicians, it was agreed by all of them that a second operation was necessary. The plaintiff then employed a prominent surgeon to perform a second operation, assisted by three others. These were all competent physicians and surgeons, and there was no evidence of negligence in their selection. From their testimony it appeared that the union formed under the first surgeon was with the ends of the bones overlapping. The new operation was not a success, but there was no negligence on the plaintiff's part in refusing to let the same surgeon perform the second operation, who had concededly failed in the first, perhaps without fault on his part, nor in the selection of new ones; and, if the defendant was liable at all, it was liable for the entire injury which the plaintiff sustained as the result of its negligence in failing to comply with the statute by safeguarding its machinery.

Society Proceedings

COMING MEETINGS

Alabama State Medical Association, Montgomery, April 17-20.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
California State Medical Society, San Diego, April 17-19.
Georgia Medical Association, Augusta, April 18-20.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Missouri Valley Medical Society, Keokuk, Ia., March 22-23.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
South Carolina Medical Association, Spartanburg, April 17-19.
Tennessee State Medical Association, Nashville, April 3-5.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

February, CLIII, No. 2

1 Epidemic Poliomyelitis; Its Nature and Mode of Infection. S. Flexner, New York.—p. 157.
2 Administrative Control of Epidemic Poliomyelitis. H. Emerson, New York.—p. 160.
3 Poliomyelitis; Preparalytic Stage and Diagnosis. J. Ruhrah, Baltimore.—p. 178.
4 Clinical Aspects and Treatment of Acute Poliomyelitis. T. Le Boutillier, *Philadelphia.*—*p.* 188.
5 Epidemic Vaginitis in Children. B. K. Rachford, Cincinnati.—p. 207.
6 How Closely Do Wassermann Reaction and Placental Histology Agree in Diagnosis of Syphilis? J. M. Slemons, New Haven, Conn.—p. 212.
7 Von Jaksch's Anemia; Report of Cases. R. G. Stillman, New York.—p. 218.
8 Case of Yeast (Monilia) Infection of Lung. C. E. Simon, Baltimore.—p. 231.
9 Rôle of Leukocytes in Viridans Endocarditis and Effect of Nuclein Injections. H. Fox and F. B. Lynch, Philadelphia.—p. 235.
10 Interpretation of Certain Blood Pressure Ratios. W. J. Stone, Toledo.—p. 240.
11 Vincent's Angina; Report of Cases. A. T. McClintock, Wilkes-Barre, Pa.—p. 256.
12 Some Facts and Fallacies Concerning Abdominal Adhesions and Bands. G. G. Ross and J. B. Mencke, Philadelphia.—p. 261.
13 Treatment of Syphilis of Central Nervous System with Intraspinal Injections of Mercurialized Serum; Report of Cases. J. M. Wolfsohn, San Francisco.—p. 265.
14 *Hematemesis Due to Chronic Appendicitis, with Explanation of Its Pathologic Physiology. J. H. Outland and L. Clendening, Kansas City, Mo.—p. 273.

14. **Hematemesis Due to Appendicitis.**—In the case cited by Outland and Clendening a true inflammation of the appendix was present. Innumerable small glands in the omentum and mesentery, hard and universally distributed, pointed to a stream of infection carried up the omentum and deposited at the pylorus. The appearance of the stomach, mottled and covered with fine veins, was the evidence of the result of this bombardment of septic material. The hemorrhage of the stomach was almost certainly due to the seepage from this inflamed gastric mucosa and serosa rather than any rupture of an enlarged vessel. The dyspepsia, the hyperacidity, and the epigastric pain were the reaction of the stomach to this continuous stream of irritation passing from the appendix up the omentum. The authors believe that this explains not only this case but the many cases of dyspepsia exactly simulating the symptoms of gastric and duodenal ulcer in which no ulcer is found, but which in many cases, when the appendix looks innocent enough, are cured by an appendectomy.

American Journal of Syphilis, St. Louis

January, I, No. 1

15 *Chemotherapy of Mercurial Compounds. J. F. Schamberg, J. A. Kolmer and G. W. Raiziss, Philadelphia.—p. 1.
16 *Bladder in Diseases of Central Nervous System; Analytical Study of One Hundred and Seventeen Cases. J. R. Caulk and H. G. Greditzer, St. Louis.—p. 42.
17 Subconjunctival Injections of Salvarsanized Serum in Management of Ocular Syphilis. R. S. Lamb, Washington, D. C.—p. 58.
18 Gumma of Nose. T. J. Harris, New York.—p. 60.
19 Unusual Forms of Syphilis of Nervous System with Particular Reference to Their Diagnosis. J. Collins, New York.—p. 63.
20 Spirochetal Content of Spinal Fluid of Tabes, General Paresis and Cerebrospinal Syphilis. U. J. Wile, Ann Arbor, Mich.—p. 84.
21 Syphilis of Stomach; Report of Cases. H. L. McNeil, Galveston, Texas.—p. 91.
22 Id. Thirty-Five Instances of Organic Gastric Lesions Associated with Positive Wassermann-Noguchi Reactions. F. Smithies, Chicago.—p. 100.
23 Syphilis of Stomach in Its Roentgenologic Aspects. R. D. Carman, Rochester, Minn.—p. 111.
24 *Syphilis and Baby. L. R. DeBuys, New Orleans.—p. 117.
25 Sanitary Attack on Syphilis. W. A. Pusey, Chicago.—p. 125.
26 *Teaching of Syphilis. H. H. Hazen, Washington, D. C.—p. 135.
27 Place of Syphilis in Our Medical Schools and Hospitals. C. J. White, Boston.—p. 144.
28 Importance of Knowledge of Syphilis and Especially of Visceral Syphilis for General Medical Diagnosis. L. F. Barker, Baltimore.—p. 149.
29 Syphilis of Thyroid; Report of Probable Case. L. Thompson, Hot Springs, Ark.—p. 179.
30 Practical Application of Wassermann Test in Diagnosis and Control of Treatment of Syphilis. C. F. Craig, U. S. Army.—p. 192.
31 Plea for Routine Wassermann Examinations for Obstetric and Gynecologic Patients in Hospital and General Practice. R. Peterson, Ann Arbor, Mich.—p. 211.
32 Rabelais' Conception of Syphilis. D. W. Montgomery, San Francisco.—p. 221.

15. **Chemotherapy of Mercurial Compounds.**—The authors' laboratory experiments on trypanosomes and spirochetes point to a greater selective affinity of salvarsan for the *Spirochaeta pallida* than is possessed by mercury. Mercuric chlorid has a much greater organotropic effect than salvarsan; in their experiments mercury was fifty times more toxic for white rats than salvarsan. Some new organic mercury compounds by the authors which far transcend mercuric chlorid in their bactericidal power in the test tube have been prepared. One new compound has shown itself to be over thirty times more powerful in this respect, both by the Rideal-Walker and the "antiseptic" test. These new mercury compounds also exhibit a greater destructive influence on trypanosomes than does mercuric chlorid. Some of these compounds have shown a lower toxicity than mercuric chlorid.

16. **Bladder in Diseases of Central Nervous System.**—Of the 117 cases tabulated by Caulk and Greditzer seven patients have died. Of these, two were tabetics; one had a spinal cord tumor; the other four were unconfirmed cases, or practically 6 per cent. mortality. This mortality has been contributed to chiefly by renal insufficiency, as in the case of the

cord tumor, and one tabetic died of uremia; three patients of the unconfirmed cases died of uremia; one of the tabetics died suddenly of collapse, after being comparatively in good condition. One of the unconfirmed patients died of ruptured bladder from carcinoma.

24. **Syphilis and Baby.**—As soon as it is ascertained that a woman, known to be or to have been syphilitic, is pregnant, treatment is advised to be instituted at once, combining salvarsan or neosalvarsan with mercury and the iodids, and when the baby is born it is determined, as soon as possible, by clinical and laboratory evidences, employing both the Wassermann and syphilitic tests, whether or not he is syphilitic. If the baby's reaction is negative he is closely watched and subsequent examinations are made. If the baby's reaction is positive the baby and mother are both given salvarsan or neosalvarsan, and the mother mixed treatment, and the baby mercurial rubs. There are times, however, when because of the surroundings, medication by mouth is employed instead of the rubs, in which instances calomel or mercury with chalk is given. Occasional Wassermann tests are made to determine when the patient becomes inactive or apparently cured, at which time the treatment is stopped but observations continued. There are times when it becomes necessary to discontinue medication in the baby owing to the overaction of the mercury, because of gastro-intestinal symptoms or loss of weight. After the symptoms subside, the treatment is begun again. It has been DeBuys' custom for many years to employ the rubs in the same place, namely, over the belly, without producing any skin irritation. The plan is to bathe the baby with soap and water, thoroughly rinse the skin, particularly over the belly, dry it thoroughly, rub in the ointment, and put on a flannel binder. This procedure goes on daily, employing the same binder. At the end of a week's time the dose of the ointment is increased and the binder changed. In this way it can readily be seen that the daily dose of the mercury is increased. This is done until the point of tolerance is reached.

26. **Teaching of Syphilis.**—Hazen emphasizes the fact that it is essential to have better teaching of syphilis. This teaching should be essentially clinical, and should be done both in the dispensary and at the bedside. To teach syphilis properly the patients must be well handled, as example is the best teacher. The teaching can be done by one department alone, provided that it has a special corps of select men. In the vast majority of instances one man should head the department, and he should work in harmony with the other departments, so that the whole subject can be handled systematically. The dermatologist is usually the proper man to head this department.

Annals of Surgery, Philadelphia

February, LXV, No. 2

33 *Choice of Operative Procedure in Cancer of Rectum and Pelvic Colon. C. H. Mayo, Rochester, Minn.—p. 129.
34 *Influence of Acidosis on Surgical Procedures. W. A. Lincoln, Calgary, Alberta.—p. 135.
35 Chemotherapy of Experimental Bacterial Infections. J. A. Kolmer, Philadelphia.—p. 142.
36 *Acute Osteomyelitis of Spine; Report of Cases. D. N. Eisendrath and D. L. Schram, Chicago.—p. 147.
37 *Significance of Giant Cells in Bone Lesions. G. Barrie, New York. —p. 151.
38 Composite Study of Celiac Axis Artery. B. Lipshutz, Philadelphia. —p. 159.
39 *Comparison of Permanence of Free Transplants of Bone and Cartilage. J. S. Davis, Baltimore.—p. 170.
40 *Paget's Disease of Nipple and Its Extramammary Occurrence. S. Sekiguchi, Tokyo, Japan.—p. 175.
41 Papilloma of Umbilicus; Report of Case. N. B. Carson, St. Louis. —p. 199.
42 *Healing of Gastro-Intestinal Anastomoses. J. M. Flint, New Haven, Conn.—p. 202.
43 Case of Traumatic Extraperitoneal Rupture of Bladder with Fracture of Pelvis. C. E. Hawkes, Providence, R. I.—p. 222.
44 *Indications for Iodoform Wax Bone Filling of Mosetig-Moorhof; Report of Cases. A. P. C. Ashhurst, Philadelphia.—p. 227.

33. Abstracted in The Journal, January 20, p. 222.

34. **Influence of Acidosis on Surgical Procedures.**—The points particularly emphasized by Lincoln are the possibility of acidosis occurring in many conditions besides diabetes, and the necessity of a proper and continued examination of the urine for acid by-products. Surgeons should have their eyes open to the danger in the preparation of patients for operations of a too prolonged starvation, especially in the case of children or those suffering from any form of exhaustion. The treatment in most cases reduces itself into supplying sufficient carbohydrate and to the neutralization of those acid by-products present by the administration of alkali. Sodium bicarbonate may be administered until the urine is faintly alkaline. Wakefulness and nervousness should be controlled, if possible, and all forms of exertion prohibited. The operation should be performed as rapidly as consistent with proper technic and under local anesthesia if any degree of acidosis be present.

36. **Acute Osteomyelitis of Spine.**—A man, aged 23, was admitted to the hospital on account of acute urinary retention. The patient looked very septic, the temperature was 104.2 F. (rectal) and pulse 120. He complained of pain over the lumbar region of the spine of a diffuse character. He had always enjoyed excellent health except for an infection of the right index finger, requiring operation one month before. Present illness began suddenly with pain in the back, radiating to the left side, and accompanied by high fever and severe night sweats for twelve days before admission. Examination of the spine at first had shown only diffuse tenderness over the lumbar and sacral regions, but during the last half of the first twenty-four hours there was retraction of the neck with marked rigidity of the entire spine and symptoms of meningeal irritation. No eye changes were found. Leukocytosis was 14,000. Lumbar puncture was done and pure pus escaped from the spinal canal. The *Staphylococcus aureus* was found in pure culture in the fluid. The roentgenograms showed an area of osteoporosis in the body of the third lumbar vertebra. The possible presence of an acute osteomyelitis of the spine in the lumbar region, secondary to the infection of his index finger was suggested and a laminectomy for drainage of the epidural abscess was done. The cauda equina was covered with reddish, fibrinous material and completely enveloped in thick pus lying in the epidural space. There was an apparent walling off of the suppuration in an upward direction, but toward the sacrum there was free pus around the cauda. The patient recovered.

37. **Significance of Giant Cells in Bone Lesions.**—The presence of numerous giant cells within the pathologic mass, on which great stress has heretofore been made as evidence of neoplastic growth, Barrie says, is really the index of a mild inflammatory process. No proof has ever been given that the giant cells, per se, have any effect on true tumor growth. Abundant evidence is to be had regarding their connection with processes of a mild inflammatory character. It is only necessary to bear in mind that the pathology of a localized so-called rarefying ostitis gives a picture similar to the early stage of what has been named giant cell sarcoma. It is not difficult to produce experimentally a lesion in the long bones that exactly resembles a so-called medullary giant cell sarcoma, or tumor, both in its gross and histologic aspects. As it seems impossible of proof that the giant cells have anything to do with tumor growth or tumor formation and all evidence points to their function as scavengers, or foreign body cells, brought forth for a definite purpose, and disappearing when that purpose is fulfilled, it does not seem to Barrie that they may be effectively classed as tumor cells. Neither can the granulation tissue masses that compose these lesions rightly be termed tumors or neoplasms. Barrie emphasizes the opinion expressed in earlier papers that this bone lesion should be grouped with the surgical diseases classified as inflammations. From the clinical picture and gross and microscopic pathology it presents, the term "chronic (proliferative) hemorrhagic osteomyelitis" is, perhaps, more exact and correct than the other terms now in use.

39. **Free Transplants of Bone and Cartilage.**—Experiments made by Davis show that transplants of free cartilage are unchanged during the length of time under observation, while free bone transplants under exactly the same conditions had either disappeared or showed marked degenerative processes.

40. **Paget's Disease of Nipple.**—Sekiguchi is of the opinion that Paget's disease is primary carcinoma of the orifices of the lactiferous or the sudoriferous ducts.

42. **Healing of Gastro-Intestinal Anastomoses.**—The healing of gastro-enterostomies, Flint found, may in parts of the anastomosis, take place by what we are accustomed to call "first intention," that is to say, with a minimum of inflammatory reaction. This occurs when there has been only a slight interference with the circulation of the gastric and intestinal mucosa. The more usual and slower method of healing occurs when there has been more or less interference with the circulation of the mucous membrane of the stomach and intestine. The regeneration of the intestinal mucosa takes place from the crypts which, in the neighborhood of the exudate, have returned to their embryonic form. The regeneration of the gastric mucosa generally begins from the less differentiated epithelium about the mouths of the gastric glands or from tubules that have returned to their embryonic form. The muscularis mucosae begins to regenerate about the second week. It may be repaired from its cut ends or may be, in part, compensated for by means of muscle tissue derived from the severed ends of the tunica muscularis of either the intestine or the stomach. At times the tunica muscularis does not regenerate at all, the infolded muscular layers being held together by new formed connective tissue. In other instances there is considerable regeneration of the muscular layers. After the gastro-enterostomy there is no modification of the intestinal epithelium. The cells appear perfectly normal.

The clinical bearing of Flint's studies emphasizes the fact that it is well to know not only the reaction of the stomach and intestine to the operative traumatism inflicted in performing a gastro-enterostomy but also the reparative process through which the organs pass during the period of healing. One should remember that the new formed anastomosis is the site of a healing ulcerated surface for a period of fourteen days and that, for the first five or seven days, the process is largely destructive, at least so far as the mucosa is concerned. Sight of this fact ought not to be lost in feeding these patients for the first two weeks, during which period the diet should be as light as is compatible with the maintenance of the strength of the patient.

44. **Indications for Mosetig-Moorhof Bone Filling.**—The iodoform wax filling, Ashhurst points out, is most easily applied and proved most satisfactory in cases of bone cavities which are sterile or nearly so at the time of operation. Thus, in cases of bone cysts or early and localized tuberculous disease, primary healing usually may be expected; and even in cases of bone abscess with attenuated infection, healing usually will occur without further interference, though a sinus may persist for some months. But even in cases not as promising as those just mentioned, *Plombierung* is frequently of inestimable advantage.

Archives of Pediatrics, New York

January, XXXIV, No. 1

45 History of Pediatrics in New York. A. Jacobi, New York.—p. 1.
46 Problem of Cardiac Child in New York. L. E. Holt, New York. —p. 12.
47 Diatheses in Their Clinical Aspect. A. Caillé, New York.—p. 16.
48 Hospital Care of Premature Infants. L. E. La Fétra, New York. —p. 22.
49 Communicability of Poliomyelitis. C. G. Kerley, New York.—p. 32.
50 Measles. C. Herrman, New York.—p. 38.
51 Country Care of Cardiac Child; What May Be Accomplished. H. B. Wilcox, New York.—p. 43.
52 Ocular Work and Rest in Childhood. C. W. Cutler, New York. —p. 50.
53 Pediatric Center in New York. H. D. Chapin, New York.—p. 61.

Boston Medical and Surgical Journal

February 8, CLXXVI, No. 6

54 Principles Underlying Surgery of Pancreas. J. B. Deaver, Philadelphia.—p. 187.
55 *Sensory Evidence of Nerve Regeneration. I. H. Coriat, Boston. —p. 192.
56 Possibilities in Social Service for Psychopathic Patients. M. C. Jarrett, Boston.—p. 201.
57 Inebriety from Medical Viewpoint. I. H. Neff, Norfolk.—p. 204.
58 Framingham Health and Tuberculosis Demonstration. D. B. Armstrong, Framingham.—p. 206.
59 Drug Treatment of Morphinism. F. H. Carlisle, Norfolk.—p. 209.
60 Case of Congenital Alopecia. J. H. Blaisdell and A. R. Cunningham, Boston.—p. 210.

February 15, No. 7

61 Acidosis; Summary of Recent Knowledge. J. L. Whitney, San Francisco.—p. 225.
62 Chronic Carbon Monoxid Inhalation and Some of Its Untoward Results. W. J. McGurn, Boston.—p. 231.
63 Epidemiology of Anterior Poliomyelitis Epidemica, 1916. D. M. Lewis, New Haven, Conn.—p. 234.
64 Medical Services and Medical and Hospital Fees Under Workmen's Compensation. F. D. Donoghue, Boston.—p. 235.
65 Physical Examination and Medical Supervision of Factory Employees. W. I. Clark, Worcester.—p. 239.
66 Fallacious Social Philosophy of Health Insurance. F. F. Dresser, Worcester.—p. 244.
67 *Fat Embolism Cause of Shock. W. T. Porter, Boston.—p. 248.
68 Shockless Surgery. Paravertebral Anesthesia with Scopolamin and Narcophin. A. R. Kimpton, Boston.—p. 248.
69 Tonsil Abscess. J. Prenn, Boston.—p. 249.

55. **Sensory Evidence of Nerve Regeneration.**—On the basis of clinical and neuropathologic data the following conclusions are drawn by Coriat: The nerve supply of the skin is not only different for the various receptors for pain and touch, but each of these regenerates at varying periods after a primary or secondary nerve suture. The time necessary for the beginning of the regenerative processes varies, although definite evidence of regeneration could be found within less than a month after suture of a nerve. The best evidence of regeneration, both from the standpoint of time and of successful nerve suture, is seen in the protopathic system. Here, when the tests are carefully made, pain points of various intensity and number can be demonstrated in the midst of an area otherwise completely analgesic. That these pain points are evidences of a regenerative process in the nerve was demonstrated, not only clinically, but was corroborated in one case histologically after a secondary nerve suture. The decrease in the threshold sensibility of these pain points seems to run parallel with the time and success of the nerve suture. As the process of regeneration proceeds, these pain points become less and less sensitive, finally disappearing altogether when regeneration is complete. It seems, also that the true source of regenerative processes in the nerve trunks is to be found in the neurilemma cells of the nerve trunk itself. It is in the presence of the neurilemma cells, or rather on their very active proliferation, that the possibility of regeneration and recovery after injury or suture is based.

67. **Fat Embolism Cause of Shock.**—An attempt was made by Porter to demonstrate by measurements of the blood pressure a causal relation between fat embolism and traumatic shock. He found that by injecting the officinal emulsion of olive oil, thick cream, neutral olive oil into the jugular vein of cats he could reproduce a clinical picture essentially similar to that of traumatic shock in human beings. The essential feature of the traumatic shock is a characteristic fall of blood pressure. Fat in the blood stream is not injurious per se; its injurious effects are the product of fat embolism. Shock is most frequent after shell fractures, especially of the femur; therefore, Porter concludes that fat embolism is a cause, though not necessarily the only cause, of shock after fracture of the bones.

Bulletin of Johns Hopkins Hospital, Baltimore

February, XXVIII, No. 312

70 *Regeneration in Peripheral Nerves. E. G. Kirk and D. D. Lewis, Chicago.—p. 71.
71 *Significance of Xanthochromia of Cerebrospinal Fluid. T. P. Sprunt and J. E. Walker, Baltimore.—p. 80.
72 *Multiple Spontaneous Intracerebral Hemorrhages. P. Greenacre, Baltimore.—p. 86.

70. **Regeneration in Peripheral Nerves.**—Forty-one specimens were studied by Kirk and Lewis. It was noted that in the immediate vicinity of nerve trauma associated with break of continuity there occurs an accelerated hyperplasia of the neurilemmal elements which results in the early formation of protoplasmic bands. These develop in both proximal and distal stump and tend to bridge the defect. Along these

protoplasmic pathways the regenerating axis-cylinders from the central stump pass. Whether they reach the distal stump and neurotise it depends largely on the extent to which these preformed conduits have successfully prepared the way. All efficient regeneration of nerve fibers (axis-cylinders) is from the central stump. All regenerating nerve fibers, whether the outgrowth of medullated or of nonmedullated axones, are in their early stages nonmedullated. All medullation begins proximally and proceeds distally, appearing only in those parts of the new axis-cylinder which have acquired an age of 5 or 5½ weeks (in the dog).

71. **Significance of Xanthochromia of Cerebrospinal Fluid.**—Five clinical cases and an analysis of 100 cases from the literature form the basis of this report. Sprunt and Walker have previously called attention to the clear, yellow spinal fluids occasionally observed at lumbar puncture. These fluids are divided into two main groups: 1. Those in which the color is due to dissolved hemoglobin or its derivatives, and which as a rule do not coagulate spontaneously and contain only a small amount of globulin. Such fluids usually are associated with brain tumors in contact with the meninges or ventricles. 2. The larger and more important group comprises those cases showing the so-called Froin's syndrome, in which the fluid is transparently clear, yellow, coagulates spontaneously, contains large amounts of globulin, may or may not show pleocytosis, and gives no positive tests for hemoglobin. This is a "compression syndrome," its main determinants being the isolation of a lumbar culdesac, in which the spinal fluid stagnates, and probably some vascular changes within its walls. Clinically, with negative roentgenogram of the vertebral column, it is strongly suggestive of a tumor of the spinal cord, although it may also be associated with intradural inflammatory processes.

72. **Multiple Spontaneous Intracerebral Hemorrhages.**—Out of 128 cases of intracerebral hemorrhage analyzed by Greenacre in twenty-four (about 18 per cent.) the brain showed discrete multiple hemorrhages, none of them being traumatic. Plurality of hemorrhages was represented in three brains by three distinct sites of hemorrhage, and in the remaining twenty-one by two. The combination of one hemorrhage into the internal capsule or basal ganglia and one into the pons was most frequent, occurring in fifteen brains (63 per cent.). Of the seven brains (32 per cent.) in which both hemorrhages were into the cerebral hemispheres, five presented bilateral symmetrical hemorrhages implicating both internal capsules or basal ganglia. One brain contained hemorrhages into the cerebrum and the cerebellum, and one hemorrhage into the cerebellum and pons. In one brain only did the pontine hemorrhage appear to be primary, a single large clot in the center of the pons being associated with multiple punctate hemorrhages in the left internal capsule. The appearance of the pontine lesions varied greatly. In eight brains they were numerous and small, scattered irregularly throughout the pontine substance. In seven brains, moderately large hemorrhages occupied the center of the pons, filling the fourth ventricle and surrounding tissue.

Records of fifteen cases of traumatic pontine hemorrhages were examined for the purposes of comparison. Twelve of the fifteen (80 per cent.) occurred with basal skull fracture of the posterior and middle fossae. In only four (28 per cent.) was there a degree of arteriosclerosis sufficient to be detected grossly, in contrast to 67 per cent. of the group of secondary spontaneous pontine hemorrhages. The traumatic hemorrhages are almost uniformly punctate, frequently grouped around the periphery of the pons, and connected with small subpial extravasations and numerous lacerations, whereas the spontaneous pontine hemorrhages are remarkably free from such obvious contusions. These differences are frequently of great medicolegal importance. Greenacre suggests that the liability of the pontine arteries to secondary rupture is due probably to their anatomic peculiarities (in that they are short, small, terminal branches given off nearly at right angles from a large trunk), and possibly to a disturbance of blood pressure in the circle of Willis with a back flow into the posterior branches.

Illinois Medical Journal, Chicago

February, XXXI, No. 2

73 Some Objections to Health Insurance Legislation. E. H. Ochsner, Chicago.—p. 77.
74 Some Interesting Laboratory Investigations in Tuberculosis. H. J. Corper, Chicago.—p. 81.
75 Clinical Application of These Problems. W. A. Gekler, Chicago.—p. 86.
76 Influence of Mixed and Secondary Infection on Pulmonary Tuberculosis in Man. R. T. Pettit, Ottawa.—p. 88.
77 Tuberculin Therapy. L. J. Quillin, Streator.—p. 91.
78 Therapeutic Value of U. S. P. Tincture of Iodin in Treatment of Tuberculosis and Other Infectious Diseases when Properly Administered and Given in Progressively Increasing Doses. J. Ritter, Chicago.—p. 94.
79 Chemotherapy in Tuberculosis. M. W. Harrison, Collinsville.—p. 99.
80 Pregnancy in Tuberculous. E. M. Heacock, Chicago.—p. 100.
81 Diagnosis of Early Pulmonary Tuberculosis. G. Halperin, Chicago.—p. 103.
82 Radical Cure of Osteomyelitis of Ribs. E. G. Beck, Chicago.—p. 107.
83 Some Painful Affections of Feet. J. L. Porter, Chicago.—p. 110.

Iowa State Medical Society Journal, Des Moines

February, VII, No. 2

84 Typhus in Iowa. M. F. Boyd, Iowa City.—p. 45.
85 Conservation of Vision. T. U. McManus, Waterloo.—p. 51.
86 Occlusion of Nasopharynx. F. W. Bailey, Cedar Rapids.—p. 57.
87 Drainage for Empyemic Conditions of Chest. F. E. Bellinger, Council Bluffs.—p. 58.
88 Renal Infections and Their Treatment. A. G. Fleischman, Des Moines.—p. 64.
89 Origin of Psychopathic Hospital. G. H. Hill, Des Moines.— p. 67.
90 Sliding Hernia; Report of Case of Double Sliding Hernia. T. F. Thornton, Waterloo.—p. 71.

Journal of Abnormal Psychology, Boston

December, 1916-January, XI, No. 5

91 World Consciousness and Future Peace. M. Prince, Boston.—p. 287.
92 Is Dementia Praecox Properly Described as Infantile Mode of Reaction? H. D. Singer, Chicago.—p. 305.
93 Case of Psychasthenia. M. Solomon, Chicago.—p. 309.
94 *Unusual Case of Speech Inhibition. S. Blanton, Madison, Wis.—p. 325.
95 Variations in Sensory Threshold for Faradic Stimulation in Psychopathic Subjects. G. P. Grabfield, Boston.—p. 328.

94. **Case of Speech Inhibition.**—The case reported by Blanton was one of a psychoneurosis due to some mental conflict. It was an accentuation of the fear and timidity which many high-strung and neurotic children suffer from when they first leave home for school. The boy's vocal cords and hearing were normal. At home he talked in a good loud tone when he was playing with his brothers. However, when on the playground with other children, he would not speak, even when playing games. At home, he speaks much less than do his brothers. He seems to try to avoid speaking. For example, if he desires something at the table, instead of asking for it, he gets it himself. However, he sometimes sings after he has gone to bed, and then his voice is full-toned and pleasant. He appeared to be suffering from mental conflict resulting in an inhibition of his speech. Blanton points out that this case shows that parents and teachers should not neglect to take notice of cases of excessive timidity in children that prevents them from speaking when in school or with strangers. This excessive fear is due to infantile conflicts and repressions and lack of adjustment, and unless these conditions are removed, a serious neurosis may develop.

Journal-Lancet, Minneapolis

February 1, XXXVII, No. 3

96 *Occurrence of Urobilinogen and Urobilin in Urine of Pregnant and Nonpregnant Women. E. Barnard, Minneapolis.—p. 80.
97 Spontaneous or Nontraumatic Rupture of Left Kidney. G. J. Thomas, Minneapolis.—p. 84.
98 Value of Fundus Examination in General Diagnosis. M. E. Trainor, Williston, N. D.—p. 86.

96. **Urobilinogen and Urobilin in Urine of Pregnant and Nonpregnant Women.**—A total of 1,005 examinations were made by Barnard for urobilin in the urine of 244 women. Of these 160 were pregnant, and eighty-four nonpregnant. Of the pregnant women, 148, or 92.5 per cent., showed urobilinuria at one time or another. Subtracting those in which increased hemocytolysis or liver disease could not be excluded, reduces the number to 115, or 71.9 per cent. Of the nonpregnant

women, 22, or 26.2 per cent., had urobilinuria. Seventeen of these had diseases which might produce changes in the liver or blood cells, leaving five, or 0.2 per cent. In the pregnant, indican was present in eighty-three, or 51.25 per cent., of the cases. In the nonpregnant, indican occurred in twenty-six, or 30.9 per cent. In the pregnant, urobilin and indican were present in seventy-two cases, indican occurring in 48.6 per cent. of the cases in which urobilin was present. In the nonpregnant, urobilin and indican were present in twelve cases, indican occurring in 54.5 per cent. of the cases in which urobilin was present.

Kansas Medical Society Journal, Topeka

February, XVII, No. 2

99 Function of Suprarenal Glands. J. S. Sutcliff, Iola.—p. 31.
100 Industrial Occupation and Recreation Among Insane. B. F. Frazer, Osawatomie.—p. 35.
101 Epidemic of Typhoid at University of Kansas. J. Sundwall, Lawrence.—p. 37.

Laryngoscope, St. Louis

January, XXVII, No. 1

102 Treatment of Frontal Sinus Suppuration. H. A. Lothrop, Boston. —p. 1.
103 Relation of Obstruction of Eustachian Tube to Local and Systemic Conditions and to Prognosis Regarding Restoration of Hearing. C. E. Ide, Los Angeles.—p. 14.
104 Bilateral Polypoid Hemangioma of Nasal Septum. J. G. Callison, New York.—p. 33.
105 Primary Epithelioma of Frontal Sinus; Report of Two Cases. D. S. Dougherty, New York.—p. 37.
106 Hemiplegia Following Tonsillectomy. G. F. Gracey, Plainfield, N. J.—p. 40.
107 Case of Septicemia with Polyarthritis and Pulmonary Infarct Following Tonsillectomy. W. A. Scruton, New York.—p. 43.
108 Diagnosis of Serous Labyrinthitis. H. B. Graham, San Francisco. —p. 46.
109 Nasal Refracture. L. L. Stanley, San Quentin, Calif.—p. 49.
110 Improved Aural Curet. J. A. Hagemann, Pittsburgh.—p. 52.
111 Responsibility and Nonsuccess in Nasopharyngeal Surgery. J. E. Reeder, Sioux City, Iowa.—p. 53.

Medical Record, New York

February 10, XCI, No. 6

112 The Hand in Health and Disease. W. P. Cunningham, New York. —p. 223.
113 Histopathologic Changes in Case of Amyotrophic Lateral Sclerosis. G. B. Hassin, Chicago.—p. 228.
114 Tuberculin Actions and Reactions. P. H. Ringer, Asheville, N. C. —p. 233.
115 Prognosis of Duodenal Ulcer. M. Einhorn, New York.—p. 236.
116 Some of Activities of Medicoliterary Service. E. Preble, New York.—p. 237.
117 Elective Localization of Streptococci from Autotherapeutic Point of View. C. H. Duncan, New York.—p. 329.

Missouri State Medical Association Journal, St. Louis

February, XIV, No. 2

118 Case of Gaucher Type of Splenomegaly with Splenectomy. B. S. Veeder and M. B. Clopton, St. Louis.—p. 49.
119 Medical Service of Life Insurance. S. B. Scholz, Jr., St. Louis. —p. 51.
120 Physical Phenomena in Pleural Effusions. J. C. Lyter, St. Louis. —p. 55.
121 Right Thing at Wrong Time in Vaccine Therapy. W. F. Grinstead, Cairo, Ill.—p. 57.
122 Two-V Flap—Practical Circumcision for Children. E. D. Twyman, Independence.—p. 59.
123 *Uncinariasis. A. H. Thornburgh, West Plains.—p. 62.
124 *Vaccination in Smallpox. F. M. Vessells, Perryville.—p. 67.
125 Relation of Laboratory to Practice of Medicine. E. L. Spence, Fulton.—p. 69.
126 Carcinoma of Prostate. E. G. Mark and H. E. McCarthy, Kansas City.—p. 71.

123 and 124. Abstracted in The Journal, June 24, 1916, p. 2121.

New York Medical Journal

February 10, CV, No. 6

127 Rights of Unborn Child. B. C. Hirst, Philadelphia.—p. 241.
128 Vicious Circle in Oral Sepsis. N. B. Potter, New York.—p. 243.
129 After-Treatment of Anterior Poliomyelitis. H. W. Frauenthal, New York.—p. 247.
130 Treatment of Prostatic Obstruction. H. G. Bugbee, New York.—p. 251.
131 Prompt Removal of Exudate from Trauma. A. B. Hirsh, Philadelphia.—p. 255.
132 Improved Stock Binder for Enteroptotic Men and Children. A. E. Gallant, New York.—p. 257.
133 Birth Control. E. C. Podvin, New York.—p. 258.
134 Injection Method of Treating Hemorrhoids. A. L. Sherman, Newark, N. J.—p. 260.

Northwest Medicine, Seattle

January, XVI, No. 1

135 Fat Dystrophies of Endocrinous Origin. H. G. Beck, Baltimore. —p. 1.
136 Relation of Blood Pressure to Anesthesia. M. V. Madigan, Portland, Ore.—p. 3.
137 Poliomyelitis. E. E. Laubaugh, Boise, Ida.—p. 7.
138 Acute Anterior Poliomyelitis; Report of Cases. J. R. Morrell, Ogden, Utah.—p. 9.
139 Heliotherapy in Skin Lesions; Report of Cases. A. Jordan, Seattle. —p. 12.
140 State's Wards. M. H. Cardwell, Portland, Ore.—p. 16.
141 Writing of Medical Papers. C. A. Smith, Seattle.—p. 20.

Ophthalmic Record, Chicago

February, XXVI, No. 2

142 Iridotasis in Glaucoma. E. Stieren, Pittsburgh.—p. 57.
143 Visual Fields in Pellagra. F. P. Calhoun, Atlanta, Ga.—p. 63.
144 Sudden Obstruction to Retinal Circulation in Case of Cardiorenal Disease. G. O. Ring, Philadelphia.—p. 70.
145 Complete Bilateral Ophthalmoplegia with Choked Disks. E. M. Blake, New Haven, Conn.—p. 74.
146 New Cataract Knife and Knife for Dacryorhinostomy. M. Black, Denver.—p. 77.
147 Campimeter vs. Arc Perimeter. L. C. Peter, Philadelphia.—p. 79.
148 Method of Operation in Complete Obliteration of Anterior Chamber; Report of Case of Corneal Staphyloma. C. G. Darling, Chicago.—p. 83.

Southern Medical Journal, Birmingham

February, X, No. 2

149 Relation of Medical Profession to Medical Preparedness. R. E. Noble, Washington, D. C.—p. 91.
150 *Rôle of Food in Etiology of Cardiovascular Renal Disease. A. Eustis, New Orleans.—p. 96.
151 Syphilis as Factor in Production of Cardiovascular Renal Disease. D. VanderHoof, Richmond, Va.—p. 100.
152 *Simplified Technic in Application of Schick's Reaction for Testing Immunity to Diphtheria. W. Litterer, Nashville, Tenn.—p. 103.
153 Artificial Pneumothorax Plea for Partial Compression. C. M. Hendricks; El Paso, Texas.—p. 107.
154 Report of Committee on Uniformity in Wassermann Reaction. W. Litterer and Others.—p. 110.
155 Evolution Under Way in Public Health Activities. J. A. Ferrell, New York.—p. 116.
156 Importance of Control of Childhood Infection in Crusade for Eradication of Tuberculosis. C. L. Minor, Asheville, N. C. —p. 122.
157 Trachoma; What the Government is Doing to Eradicate and Prevent Its Spread. J. McMullen, Lexington, Ky.—p. 130.
158 Surgery of Chronic Ulcer of Stomach and Duodenum. W. D. Haggard, Nashville, Tenn.—p. 137.
159 *Suction Drainage in Empyema. A. McGlannan, Baltimore.—p. 143.
160 *Meckel's Diverticulum; Umbilical Disorders of Infancy. R. M. Harbin, Rome, Ga.—p. 148.
161 Case of Fracture of Pelvis. D. Z. Dunott, Baltimore.—p. 150.
162 Case of Superfetation Occurring in Uterus Subseptus. W. T. Pride, Memphis, Tenn.—p. 159.
163 Operative Treatment of Chronic Frontal Sinusitis. T. W. Moore, Huntington, W. Va.—p. 161.
164 Laryngeal Diphtheria. J. B. Greene, Asheville, N. C.—p. 164.

150. Abstracted in The Journal, Dec. 23, 1916, p. 1967.

152. **Schick's Reaction for Testing Immunity to Diphtheria.** —Litterer's method of applying the test requires no special technic that is not easily acquired by any physician. The necessary articles are a 1 c.c. hypodermic syringe graduated in tenths, a No. 26 or 27 gage needle, a vial each of sterile normal salt solution, and diphtheria toxin. All the physician has to do is to pour the salt solution into the vial and shake it. Two tenths of a cubic centimeter of this solution is the proper dose for the test. The injection should be made into the skin (intradermal) and not subcutaneously. This is easily accomplished if a small bit of the skin is held tightly between the thumb and forefinger of one hand and the barrel of the syringe in the other is held lower than the needle point. The reaction, if positive, is shown by an area of inflammation varying in extent from 2 to 5 cm. in diameter. It is more intense in the center and lasts for about ten to fourteen days, when it gradually disappears, leaving a brown desquamating surface. Those giving such reaction, are susceptible to diphtheria while those who do not, have a natural immunity which is adequate to protect them.

159 and 160. Abstracted in The Journal, Dec. 23, 1916, pp. 1966 and 1967.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

December, 1916, XXXIV, No. 131

1 Art of Medicine in Age of Homer. F. H. Edgeworth.—p. 105.
2 Effect of General Conditions on Quality of Teeth. W. R. Ackland.—p. 118.
3 Some Aspects of British Surgery in France. J. Swain.—p. 128.
4 Medicine and Surgery in Mesopotamia. C. F. Coombs.—p. 136.
5 Ten Months in France with a Field Service Roentgen Ray Outfit. W. Cotton.—p. 144.
6 Operation for Drainage of Sphenoidal Sinus. P. Watson-Williams.—p. 157.

British Medical Journal, London

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7 Contractures and Allied Conditions; Their Cause and Treatment. G. Cooper.—p. 109.
8 Diseases of Male Urethra. F. S. Kidd.—p. 114.
9 *Nerve Grafting as Means of Restoring Function in Limbs Paralyzed by Gunshot or Other Injuries. A. W. Mayo-Robson.—p. 117.
10 *Incidence of Tetanus Among Wounded Soldiers. D. Bruce.—p. 118.
11 Three Cases of Tetanus. R. I. Douglas and C. H. Corbett.—p. 119.
12 Sodium Salicylate in Treatment of Trench Feet. W. Gordon.—p. 121.

9. **Nerve Grafting in Paralyzed Limbs.**—A case is cited by Mayo-Robson which shows that in the absence of recently removed nerve, such a structure as the spinal cord of a rabbit may be successfully used as a graft. There had been a complete division of the median, ulnar and internal cutaneous nerves. The internal cutaneous nerve ends were united by a catgut suture. The fibrous tissue between the ends of the ulnar nerve was excised, and the two healthy portions were united by grafting strands of the sciatic nerve of a rabbit so as to fill up the gap and produce continuity. It was quite impossible to bring the divided ends of the median nerve nearer than 2½ inches. All the available nerve tissue having been exhausted in uniting the ulnar nerve. The spinal cord of a rabbit just killed was used as a graft to connect the ends of the median nerve, the inserted cord lying loose and quite free from tension when finally placed in position. Fine catgut sutures were used throughout. Six months after the operation the patient could pick up small objects, and although the grasp was not powerful, it was much improved. The powers of flexion of the wrist and adduction of the thumb were considerably increased, but there was no sensation as yet over the ulnar distribution. Six years after the operation the muscles had almost completely returned to their former volume, and in the hand all the muscles except the abductor of the thumb were as well developed as in the left; this was quite as well marked in the interossei as in the other muscles. The movements of the arm were completely restored and almost as perfect as in the left. Flexion of the fingers and the grasp had completely returned, and the only weak muscle was the abductor of the thumb, which had no perceptible power. Sensation was completely restored. All the muscles of the arm and hand reacted to faradism except the abductor of the thumb.

10. **Tetanus Among Wounded Soldiers.**—The principal object of Bruce's paper is to draw attention to the effect of prophylactic injections of antitetanic serum in lowering the incidence of tetanus among wounded men. The ratio in September, 1914, was 16 per 1,000; in October, 32 per 1,000; and in November it was 2 per 1,000, about which figure it remains until the present date. This remarkably sudden fall is attributed to the introduction of prophylactic injections of antitetanic serum.

Journal of Laryngology, Rhinology and Otology, London

January, XXXII, No. 1

13 Pathology of Congenital Syphilitic Disease of Ear. J. S. Fraser and R. Muir.—p. 8.

Lancet, London

January 27, I, No. 4874

14 *Recent Cases of Tetanus in British Expeditionary Force. W. B. Leishman and A. B. Smallman.—p. 131.
15 Modified Tetanus. H. Burrows.—p. 139.
16 Weil's Disease (Spirochetosis Ictero Hemorrhagica) in British Army in Flanders. A. Stokes, J. A. Ryle and W. H. Tytler.—p. 142.
17 Toxic Jaundice in Munition Workers. M. J. Stewart.—p. 153.

14. **Treatment of Tetanus.**—The authors place the alternative channels of administration of tetanus antitoxin in the following order of merit: intramuscular, subcutaneous, intrathecal and intravenous. The intravenous route should not be used; not only does it introduce a risk of anaphylactic shock, from which other methods are practically free, but it has done little, if any, good in treatment. As to the intrathecal route, the evidence obtained by the authors is pretty strongly against its employment. They feel that the intrathecal route may be a dangerous one and that its theoretical foundations are not as secure as one would like. It formed a part of the treatment in twenty-seven cases in which the patients recovered. The subcutaneous and intramuscular routes are essentially similar in action, each being a comparatively slow and continuous method of dosage as distinguished from the rapid introduction involved in the venous and thecal methods. When these two paths of introduction have been utilized freely, and where the dosage has been sufficient, the results as regards saving life have been more satisfactory than when they were not utilized or were used in altogether too restricted a fashion. Should the wound be a single one, and especially if it is on a limb, the authors believe it would be sound practice to introduce antitoxin, both subcutaneously and intramuscularly, somewhere astride the path which the toxin must travel on its way to the spinal cord. To do this effectually it would appear better to divide the dose and inject portions on each surface of the limb and also at different depths amid the muscles. Somewhere among these tissues run the nerves along which the poison is traveling, and the more evenly distributed the antitoxin the better would appear the chance that it may attain effective contact with the toxin and achieve the desired object. If the combined subcutaneous and intramuscular routes be used, the daily dosage for the first few days should not fall below 10,000 units. If it be desired to supplement this by intrathecal injections, it would appear wise to limit these to such a number of units as could be contained in 10 or 15 c.c.

Medical Journal of Australia, Sydney

December 30, 1916, II, No. 27

18 *Skin Eruption Associated with Presence of Great Numbers of Demodex Folliculorum. H. Lawrence.—p. 555.
19 Left Side Pelvic Pain. J. A. G. Hamilton.—p. 556.
20 Case of Bone Transplantation for Osteitis Fibrosa Cystica; Excision, Transplantation. D. M. Morton.—p. 557.

January 6, I, No. 1

21 Bacilli and Immunity. J. C. Verco.—p. 1.
22 *Fatal Hemorrhagic Dengue. J. A. Goldsmid.—p. 7.
23 Case of Epithelioma Adenoides Cysticum (Brooke). N. Paul.—p. 8.

January 13, No. 2

24 Localization of Foreign Bodies in Eye. J. G. Edwards.—p. 25.
25 Treatment of Intracapsular Fracture of Femur. C. E. Todd.—p. 27.
26 Fibroid Tumor of Broad Ligament. J. A. G. Hamilton.—p. 28.
27 Technic of Rectal Oil-Ether Anesthesia. W. Ray.—p. 29.
28 Resection of Intussusception in Child of Seven Months; Recovery. P. L. Hipsley.—p. 30.
29 Cesarean Section for Eclamptic Convulsions. H. H. Lee.—p. 30.

18. **Skin Eruption and Acarus.**—Lawrence is of the opinion that cases of an impetiginous eruption in adults associated with the presence of great numbers of these parasites have been on the increase. So familiar has the clinical picture become that it is generally possible to predict that great numbers of demodex will be found. These cases have occurred in adults, and resemble an impetigo contagiosa, but there would seem to be some difference from that affection. The lesions have a greater tendency to form rings, and the border of the skin is more definitely raised than in ordinary impetigo contagiosa. The pustulation is not so severe as in impetigo, nor do these cases respond so rapidly to the usual simple antiparasitic remedies as might be expected. Some patients have thought the eruptions followed on shaving, but the

lesions may be situated away from the hairy region, and be found on the forehead, neck, or on the nose. The feature common to all these cases is the extraordinary numbers of the *Demodex folliculorum* which are demonstrable in the most simple scraping from the skin. Five or more may be seen in a microscopic field, and their size varies in quite a remarkable degree, possibly representing successive generations.

22. **Fatal Hemorrhagic Dengue.**—Experience has convinced Goldsmid that jaundice of a moderately severe type is not uncommon, and, in addition to this, he has seen three severe cases of purpuric complications. When seen, two of the children had been ill for five days. They had hematemesis and hemorrhage from the bowels. One was moribund when brought in, and died within twenty-four hours. The other recovered after a tedious illness, with frequent relapses of her fever, though when once thoroughly checked the hemorrhages did not recur. A third case terminated fatally. A man, aged 26 years, had hemorrhagic effusions into the tongue, hands, wrists and forearms. The legs and body were also affected. He had had malaria two or three years before, and had taken large quantities of quinin. There was no history of hemophilia in the family. Dengue had been present in the household of his employer, and May 17, he became ill with pains in the back and limbs, headache and soreness of the eyes on movement. He had slight fever, but did not notice any rash. The condition was evidently dengue. May 23, he was back at work, and noticed that some slight scratches bled very freely and persistently. After a time, small, very dark spots came out on the hands and spread all over the body. Some of the spots became large, and his gums began to bleed. There was no vomiting and no purging. He was "light-headed" for one night. He passed bloody urine. He had taken no drugs except a dose of magnesium sulphate. May 26, the urine contained much more blood. The patient was spitting blood from his mouth continually. May 28, hemorrhage from the nose occurred. The patient vomited blood, and also coughed it up. He complained of pain in his head. The petechiae on the hands were much larger. At 9:15 a. m. he was unconscious, and at 1:45 p. m. he died. A full postmortem report is given.

Quarterly Journal of Medicine, London

October, 1916-January, X, Nos. 37-38

30 Septicemia Due to Micrococcus Tetragenus as Cause of Pyrexia at Front. A. H. Birks, R. T. Thornley and R. A. Fawcus.—p. 1.
31 *Study of Metabolism in Case of Amyotonia Congenita. F. Powis and H. S. Raper.—p. 7.
32 Records of Speech in General Paralysis. E. W. Scripture.—p. 20.
33 *Retinitis of Arteriosclerosis and Its Relation to Renal Retinitis and to Cerebral Vascular Disease. R. F. Moore.—p. 29.
34 Early Stage of Wounds of Chest. W. P. Herringham.—p. 79.
35 Jaundice of Infective Origin. B. Dawson and W. E. Hume.—p. 90.
36 Lipodystrophia Progressiva. F. P. Weber.—p. 131.

31. **Metabolism in Amyotonia Congenita.**—The chief findings obtained by Powis and Raper from a study of one case of amyotonia congenita (associated also with some nutritional disturbance) may be summarized as follows: 1. A diminution of hepatic functional activity as manifested by the presence of acholia. 2. A normal calcium retention associated with a relatively high potassium retention. 3. A low creatinin excretion, and accompanying this a relatively high creatin excretion. 4. Treatment of the case with bile salts or dried ox bile produced some improvement, as manifested by an increase in strength of the muscles, and a change toward the normal in the ratio of the potassium to the calcium retention, the normal values, owing to a lack of other data, being deduced from the ash analyses of young animals.

33. **Retinitis of Arteriosclerosis.**—Of forty-four patients suffering from a gross cerebral vascular lesion, thirty-one (70 per cent.) exhibited evidence of retinal vascular disease, and in 19 of them (43 per cent.) it was severe in degree. Twenty-seven are known to have died and the cause of death has been ascertained in twenty-six instances. Of these twenty-six cases a gross vascular cerebral lesion has been the cause of death in twelve (46 per cent.). Of forty-six patients in whom retinal vascular disease was sufficiently severe to give rise to symptoms, twenty-one (46 per cent.) had either suffered from such a lesion or developed one in the course of about three years.

Archives de Médecine des Enfants, Paris

January, XX, No. 1, pp. 1-56

37 *Prophylaxis of Contagion in Children's Hospitals. (Les conditions d'hospitalisation des enfants.) H. Barbier.—p. 1.
38 *Emetin in Treatment of Subacute or Chronic Follicular Enterocolitis. L. A. Azcoitia (Oviedo).—p. 23.
39 Fulminating Pneumonia of Right Lung in Girl of Five. J. Comby.—p. 25.
40 Addison's Disease in Girl of Thirteen with Necropsy. J. Comby.—p. 28.
41 Infectiousness of Febrile Jaundice. (Maladie de Weil.) J. Comby.—p. 30.

37. **Prophylaxis of Infection in Infant Wards.**—Barbier describes the methods in vogue at the Hérold hospital at Paris to prevent contagion in the infant ward. The latest improvement is to have the nurses wear a veil like the veil worn in the operating room. This adds the finishing touch to the glass box system by preventing the carrying of infection in the hair from one box to another. The little caps worn by nurses are no protection in this line. He expatiates further on the importance of a well trained and experienced set of nurses. The constant necessity for having to break in new nurses for the care of the isolated infants is discouraging. Sterilized folded cloths under the infant's heads have done away with the infections of the head which used to be common. One nurse has charge of the food for all the infants, written directions being given for each. She collects the directions and prepares the food, and this is her entire work, in a room apart. Each wire basket is marked with the number of the bed, and the bottles are thus prepared at 11 a. m. for the twenty-four hours. Infants unable to take cow's milk have thriven on ass's milk, when breast feeding could not be obtained for them. Many of the children in advanced marasmus were thus restored to health in the course of several months. Among the 1,238 infants in the hospital, 1909 to 1913, the mortality was 35 per cent., and 29.5 per cent. of the 442 deaths were from typical tuberculosis, confirmed by necropsy.

He adds that of the 141 deaths among the 311 marasmic infants, 62 per cent. were from septicemia. Only 15.1 per cent. succumbed to the marasmus. These children were in the crèche ward where two or more with or without the mothers, were in each box. All the septicemia infants except about 30 per cent. were under 6 months. In many of them, but not all, hospital contagion was unmistakably responsible. Marasmic children have so little resisting power that their skin and mucous membranes are predisposed to infections of all kinds. Sometimes a series of such cases occurred in the crèche. These experiences have convinced him of the absolute necessity of a separate cubicle for each infant. The infants already infected should be kept entirely separate from the others, and nurses tending the infected ones should never have anything to do with the other marasmic infants. Another feature of which he complains is that there is no provision made for taking convalescent infants and older children out of the hospital atmosphere at the earliest possible moment. He has to keep them on in the hospital. His experiences with measles, whooping cough and typhoid are related in detail. None of the forty-six cases of typhoid terminated fatally, and he ascribes this in large part to the avoidance of milk. No milk is given the typhoid children except in the form of yoghurt. Under this the intestinal symptoms are mild, the tongue is moist, and the general symptoms attenuated.

38. **Emetin in Chronic Follicular Enteritis.**—When the dysenteriform bowel trouble had passed into a subacute or chronic phase, rebellious to other measures, Azcoitia found emetin effectual. In the four children over a year old there were no signs of intolerance, and convalescence was well under way by the twelfth day in all under the daily small doses by subcutaneous injection. He does not venture to explain the action of the emetin in these cases, as there was no question of the ameba being involved.

Paris Médical

January 20, VII, No. 3, pp. 54-68

42 *Syphilis after Two Years of War. Gaucher and Bizard.—p. 54.
43 *Typhoid Bacilli in the Bile from the Duodenum. (La biliculture chez les typhiques.) M. Labbé and G. Canat.—p. 57.
44 Walking Devices after Injury of the Leg. (Appareils de marche avec étrier de décharge pour diverses lésions du membre inférieur.) J. Regnault.—p. 59.
45 *Patch of Anesthesia on the Chin as Sign of Fracture of Lower Jaw. (Sur un signe peu connu des fractures du maxillaire inférieur.) L. Imbert and L. Gauthier.—p. 65.
46 Various Manifestations of Fatigue in Soldiers on Active Duty. (Quelques formes de la fatigue à l'avant.) M. Lelong.—p. 66.

42. **Syphilis After Two Years of War.**—Gaucher's address was summarized in these columns Feb. 10, p. 492.

43. **Typhoid Bacilli in Bile from Duodenum.**—The bile was obtained with the duodenal catheter or with the stomach tube an hour after injection of oil. The tests were made on thirty-five typhoid or paratyphoid patients at various stages of their disease. The findings are tabulated. The bacilli found in the bile were always of the same species as those found in the patient's blood or stools or both. The findings were positive in the bile in 43 per cent. but only in 36 per cent. in the stools, and there was no simultaneous parallelism between the two. It is possible that the typhoid bacilli get killed off before they reach the rectum. In one case the blood seemed to be sterile as also the stools, and serodiagnosis tests were negative, but the symptoms suggested typhoid, and twelve days after defervescence bile from the duodenum disclosed paratyphoid B bacilli.

45. **Localized Anesthesia as Sign of Fracture of Lower Jaw.**—Imbert gives an illustration of the round patch on the chin and lower lip, close to the median line, which he has found constantly anesthetic with fracture of the lower jaw. The patch is over an inch in diameter, being the region innervated by the end branch of the inferior dental nerve.

Presse Médicale, Paris

January 18, XXV, No. 4, pp. 33-40

47 *Toxicity of Emetin Hydrochlorid. (Toxicité du chlorhydrate d'émétine.) R. Dalimier.—p. 33.
48 Repairing the Lower Jaw after War Wounds. Pierre-Robin. —p. 35.

47. **Toxicity of Emetin.**—Dalimier tabulates the findings with tentative doses of emetin hydrochlorid in rabbits and guinea-pigs, which established as the toxic dose per kilogram of body weight 0.002 gm. by intravenous injection and 0.03 gm. subcutaneously for the rabbit, and 0.007 and 0.09 gm., respectively, for the guinea-pig. He used a 2 per cent. solution of emetin hydrochlorid for his tests. Maurel has reported similar research on vertebrates but he found the toxic dose much larger than those obtained by Dalimier. The latter repeated Maurel's experiments and the animals died before he had even reached Maurel's dose claimed to be merely toxic.

Applying to man the figures obtained on animals, Dalimier computes the dose which would induce symptoms of toxic action in a man weighing 60 kg. as 0.12 gm. by intravenous injection, and 1.8 gm. by subcutaneous injection. The maximal safe dose would be 0.06 by intravenous injection and 1.2 by subcutaneous injection. Of course, he admits, it is incorrect to apply directly to man the results of experimental research, but the two cases of intoxication from emetin which he has found on record showed a surprising harmony in respect to the doses followed by symptoms of intoxication. The first was published by Spehl and Colard of Brussels. A man of 28 was given a subcutaneous injection of 0.03 gm. of emetin hydrochlorid in a 3 per cent. solution twice daily for six days and then three times daily for twelve days, the total administered being thus 1.44 gm. in eighteen days. When this total was reached there was first flaccid paralysis of all the musculature, most pronounced in the neck, so he could not hold his head up. Then came disturbances in swallowing, chewing and speech, followed by edema of the face, attenuation of the reflexes and rapid and weak heart action, with reduction of the urea and chlorid content of the urine. Paralysis of the respiratory muscles was feared but did not develop, and on suppression of the drug and treatment with tannin, camphorated oil, diuretics, etc., the toxic phenomena subsided. By the twentieth day nothing was left of the symptoms of intoxication except a certain weakness of some muscles.

In Lagane's case the patient was given 0.08 gm. of the emetin by subcutaneous injection for fourteen days, a total of 1.12 gm. in the two weeks. The blood pressure then was found abnormally low with weakness of the heart contractions.

In Dalimier's experimental work the corresponding toxic dose for the rabbit might be calculated at 1.8 gm. and the dose tolerated 1.2 gm. In Lagane's case the toxic dose proved to be 1.12 and in Spehl's case 1.44. Lagane's patient had not reached the actual toxic dose and the drug was stopped in time to avert trouble, but Spehl's patient had passed the danger mark. The harmony between the experimental and the clinical experiences related is the more remarkable as the animals were given the whole dose practically at once while in the clinical cases it was spread over two weeks and more. This suggests, Dalimier remarks, that emetin has a cumulative action. The total dose of 1 gm. of the emetin seems to be the limit of safety. He is convinced that in certain cases of dysentery in which emetin has been given, some of the symptoms that have been ascribed to the disease were in fact the work of the emetin.

Berliner klinische Wochenschrift

December 18, 1916, LIII, No. 51, pp. 1357-1380

49 *Improved Technic for Detection of Occult Blood. (Neue Beitrage zur Methodik des okkulten Blutnachweises.) I. Boas. —p. 1357.
50 Gastrohydrorrhea in Cirrhosis of the Liver Accompanied by Pyloric Stenosis. M. Einhorn (New York).—p. 1361.
51 *Myasthenic Bulbar Paralysis in Two Chronic Diphtheria Bacilli Carriers. M. Gerson.—p. 1364.
52 Sugar Preparation as Substitute for Glycerin. (Mollphorus als Glycerinersatz.) Meirowsky.—p. 1366.
53 Therapeutic Influencing of the Metabolic Disturbances in Rachitis. (Ueber Rachitis. IV.) E. Schloss.—p. 1366.

49. **Improved Technic for Detection of Occult Blood.**—Boas says that all efforts to detect hemin crystals in the excreta have proved futile when it is a question of invisible blood, while spectroscopic examination requires skill and an equipment which not all practitioners possess. This restricts us, he continues, to the catalytic methods of examination, and benzidin and phenolphthalein are such excellent catalyzers that when the findings with both are negative the absence of blood is practically certain. They are both so sensitive, however, that a positive reaction may be obtained even in certainly nonpathologic cases. Boiling the extract of feces does not alter the findings. The question is now what substances, besides blood, are able to induce the reaction. Schumm's modification of the guaiac test is reliable as he removes pigments, fats and all the organic and inorganic catalyzers before applying the guaiac technic. But this requires such quantities of the alcohol-ether and takes so much time that it can never become a routine procedure. The trouble with the usual guaiac test is that the chemicals hitherto used to make the extract of the feces do not dissolve out all the blood in them, but chloral hydrate, in a 70 per cent. alcoholic or ethereal solution, has proved in Boas' research an ideal means for extracting the hematin of the feces. When chloral is used, the guaiac test may give positive findings when the reaction is negative with all other technics except Schumm's, while the procedure is simple and requires only a few minutes. For the stomach content he prefers the usual guaiac technic, merely neutralizing the stomach content with sodium carbonate. This is sufficiently exact for stomach content. He has also confirmed that thymolphthalein can serve to reveal occult blood and is very useful to control other tests. It is used for the blood test in the same way as the phenolphthalein technic, both for feces and stomach content. By applying both the chloral and the thymolphthalin technics, to control each other, much better insight can be obtained in dubious cases.

He rubs up the piece of feces the size of a bean or cherry, with 5 or 10 c.c. of a 70 per cent. solution of chloral hydrate in 96 per cent. alcohol, and adds 20 drops of glacial acetic acid, blending the whole thoroughly. Then he dissolves in 2 c.c. of the chloral solution as much pulverized gum guaiac as he can take up on the tip of a spatula; adds 20 or 25 drops of 3 per cent. hydrogen dioxid and shakes vigorously. The chloral extract of fecal material is then slowly filtered into this mixture of guaiac and H_2O_2. In the presence of blood the upper layer soon turns blue, but this blue tint is transient. It is not necessary to shake the fluid.

For the thymolphthalin test he rubs a scrap of feces as large as a cherry with 5 or 10 gm. alcohol and 10 drops glacial acetic acid, and sets it aside for a short time. Then 20 drops of the thymolphthalin reagent are mixed with 15 drops of 3 per cent. hydrogen dioxid. Then 25 or 30 drops of the feces extract are filtered into the reagent. On shaking up the whole, a grayish blue opaque precipitate is thrown down which in a few seconds, on the floor of the test tube, shows first a violet and then an increasing blue tint which, if there is much blood present, soon spreads throughout all the fluid. The blue tint persists for hours or even days. In the absence of blood the precipitate is colorless or a grayish white. With stomach content the test is applied to 5 c.c. of the well mixed stomach content first mixed with 10 drops of 10 per cent. sodium carbonate solution and then 10 drops of glacial acetic acid are added. After waiting to allow the carbon dioxid to escape, then an equal volume of alcohol is added, the whole well shaken several times and filtered. Then 15 or 20 drops of the filtrate are added to the reagent. In the presence of blood there is a distinct zone reaction; on shaking, a more or less pronounced blue tint. There is no change of tint unless there is blood present.

As thymolphthalin is not to be procured at present, he produces it by dissolving 1 gm. thymolphthalein and 25 gm. potassium hydroxid in 100 gm. water and adding 10 gm. zinc powder. The blue fluid resulting is boiled over a small flame, constantly stirring or shaking until completely decolored. It is then filtered hot and brought up to the original volume with distilled water. Zinc filings are then placed in the solution to a height of 0.5 cm. Thus prepared the reagent will keep for weeks. The colorless thymolphthalin becomes transformed back into blue thymolphthalein in the presence of oxidizing substances, such as that in the occult blood with the catalyzer hydrogen dioxid.

51. **Myasthenic Bulbar Paralysis.**—Gerson reports two cases; both in chronic diphtheria bacilli carriers, and he calls attention to this coincidence as possibly explaining the etiology of the affection. The prolonged chronic action of the diphtheria toxins seems to have been responsible for the peculiar course of the myasthenic paralysis which increased and became abated in waves, the whole forming a mitigated form of a chronic toxic paralysis rising and falling with the waves of toxin production. During the two or three months to date in his cases there has been no change in the condition. The symptoms were first noted two or three years ago. There was a history of diphtheria nine years before in one case but none in the other, although both the young patients had been subject to infectious sore throat.

Deutsche medizinische Wochenschrift, Berlin

December 21, 1916, XLII, No. 51, pp. 1565-1596

54 *Treatment of Continuous Vomiting. (Behandlung des bedrohlichen Erbrechens.) J. A. Grober.—p. 1565.
55 *Traumatic Neuroses. H. Oppenheim.—p. 1567.
56 *Agglutination of Proteus in Diagnosis of Typhus; the Weil-Felix Reaction. (Weil-Felixsche Reaktion beim Fleckfieber.) Dietrich.—p. 1570.
57 Tubercle Bacilli Fat as Antigen. (Antigene Eigenschaften der Tuberkelbazillenfette.) M. Bürger and B. Mollers.—p. 1573.
58 *Incision in Occiput and Puncture of Lateral Ventricle to Drain in Meningitis and Chronic Suppuration and Hydrocephalus. M. Westenhöfer and R. Muhsam.—p. 1574.
59 *The Wassermann Reaction with Cancer. (Zur Frage der Spezifizitat der Wassermannschen Reaktion: Tumor- und Narkosensera.) E. Sonntag.—p. 1577.
60 Interdigital Mycosis. (Hartnackige Pilzerkrankung der Interdigitalraumes mit familiarer Uebertragung.) E. Hoffmann.—p. 1579.
61 *Dakin's Solution in Treatment of Wounds. (Zur Wundbehandlung mit Dakinschen Lösung. Physiologische Antisepsis.) O. Hirschberg.—p. 1581.
62 *Dangers from Inadequately Treated Syphilis under Salvarsan. W. Lüth.—p. 158[illegible]
63 The Blood Findings in Tetanus. Arneth.—p. 1585.
64 *Treatment of Purpura and Hemophilia. R. Klinger.—p. 1585.

54. **Treatment of Severe Vomiting.**—Grober describes three cases of continuous vomiting which illustrate the variety of causes liable to keep up the vomiting. Removal of the cause is the main thing, but in the meantime the quiet and warmth of the bed are always useful and the patient belongs in bed, with extra heat applied to the stomach region with something light, a woolen cloth, fur, or a flat sack with hay, using nothing heavy. No food or drink should be allowed by the mouth for at least twenty-four hours. Thirst should be relieved by way of the rectum. Later, scraps of ice can be taken in the mouth; as they melt the fluid must be expelled, not swallowed. Patients usually fail to do this, so it is safer to refrain from the ice. Changes of position should be avoided, even for examination; the patient should keep absolutely still. Sedatives can be given by the rectum; he has found 2 or 2.5 gm. chloral in 30 c.c. water very useful, as also codein suppositories. When the sedative can be given by the mouth, he has found most excellent a solution of 1 gm. menthol in 100 c.c. water with 20 or 30 c.c. brandy, giving a teaspoonful three or four times a day, especially when there is much exhaustion. A few drops of chloroform on a scrap of ice may prove useful. Potassium bromid may be indicated when the patient is very restless, or in case of hysteria or pregnancy. If the vagus system seems particularly involved, suppositories made with 0.02 or 0.03 gm. extract of belladonna sometimes give relief. Morphin or its equivalent ensures the needed rest for patient and family and rests the stomach, but it is dangerous if there is a tendency to collapse. In conclusion Grober warns that household remedies may have been taken which directly promote the vomiting, and this should always be enquired into. Worry and physical exhaustion may bring on continuous vomiting; in one of the cases described uremia was responsible for it, the system trying thus to throw off the toxins. Venesection is indicated here, with lumbar puncture and tapping. In another case the vomiting was traced to compression of the vagus center by a cerebral tumor. In a third case hysteria was responsible; the woman looked rosy and well nourished and only part of the food ingested was vomited up. Suggestion and some bitter tincture by the mouth were indicated here.

55. **Traumatic Neuroses.**—Oppenheim's views were summarized in the Berlin Letter, Feb. 24, 1917, p. 647.

56. **The Weil-Felix Reaction in Typhus.**—Dietrich's experiences with eighty-one typhus patients have confirmed the constancy of agglutination of a certain strain of proteus bacilli by typhus serum. Agglutination was characteristic in every case, and constantly negative in the controls.

58. **Incision in Occiput and Puncture of Lateral Ventricle for Drainage.**—Westenhöfer and Mühsam give an illustration to show the extremely simple technic and the advantage of this procedure in treatment of meningitis, suppurative processes in the brain and hydrocephalus. Evacuation of fluid in the subarachnoid space is ensured by an opening into the lowest part of the lateral ventricle, with or without a counter opening in the occipital region. The site for the operation is about the same as for gasserectomy. A hole is drilled in the temporal bone about 1 cm. above the junction of the malar process with the temporal bone. The trocar is inserted not deeper than 3 cm. in children and 4 cm. in adults. A metal retention drain can be introduced and the skin sutured over it. The puncture has been applied in three cases reported in detail. The first patient was a girl of 17 with an acute encephalomyelitis with various complications. Improvement followed puncture of the lateral ventricle releasing 15 c.c. of fluid, and the patient recovered completely except that the right arm is still weak. The other patients were suffering from hydrocephalus left by meningitis, and the puncture of the lateral ventricle, while it relieved, was unable to arrest the advanced process and both patients died. Necropsy showed hemorrhage in one case for which the puncture may have been responsible.

59. **The Wassermann Test with Cancer.**—Sonntag reviews the literature on this subject and his own experience. In 125 cases of cancer he obtained a positive reaction only in two cases, and in both of these necropsy revealed syphilitic lesions

in addition to the malignant disease. Cancer thus in itself does not induce a positive Wassermann reaction as some have maintained.

61. **Dakin's Solution in Treatment of Wounds.**—Hirschberg reports success in treatment of the wounded according to the Carrel-Dakin technic. He says it conforms to the principles of lymph lavage, cytophylaxis and physiologic antisepsis in general, but adds that now that this field of physiologic antisepsis has been opened up, it may be possible to find still more effectual means in this line.

62. **Inadequate Salvarsan Treatment of Syphilis.**—Lüth remarks that tertiary manifestations of syphilis are being encountered now of a severer character than before the days of salvarsan. The latter is not responsible for this, but the fact that the course of treatment was inadequate. He explains why inadequate salvarsan treatment entails more serious results than inadequate mercurial treatment, saying that insufficient doses of salvarsan, too small to destroy the spirochetes, actually breed a strain of more resistant spirochetes, according to the biologic laws of immunology. The patient is thus worse off than if he had been given no treatment at all. The spirochetes are more resistant and more virulent, and thus conditions for their attacking the nervous system are rendered more favorable. In the meanwhile the patient has been losing strength and may not then be able to produce antibodies enough to give a positive Wassermann reaction. The danger of breeding an extraresistant strain of spirochetes, by inadequate salvarsan treatment, is materially reduced when mercury is given with it from the beginning. He makes a practice of this, as he describes in detail. There is no doubt, he adds, that insufficiently treated syphilis runs a much severer course under salvarsan than in the old days of mercury alone. He warns further that treatment with salvarsan requires specialist skill and experience, guided by the blood findings and the entire course of the disease and the results of treatment, possibly calling on the neurologist and ophthalmologist, if we are to ward off indescribable misery from the present and the next generation.

64. **Blood-Platelet Extract by the Mouth Does Not Affect Coagulating Time of Blood.**—Klinger declares that it is practically impossible to influence the coagulating time of the blood by any substances ingested. With hemorrhage in the stomach or bowel, gelatin may aid in arresting hemorrhage by its direct contact with the bleeding substance. With severe and recurring hemorrhages in purpura and hemophilia it is better not to waste time with such measures but resort at once to transfusion of 50 or 150 c.c. of blood.

Medizinische Klinik, Berlin

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65 Nature and Treatment of War Neuroses. (Wesen und Behandlung der Kriegsneurosen) R. Wollenberg.—p. 1355.
66 *Advantages of Massage and Exercise in Treatment of Gout, both During and Between Attacks. (Mechanotherapie bei Gicht.) F. Kirchberg.—p. 1358.
67 *Clinical Diagnosis of Contracted Kidney. (Zur klinischen Diagnose der Schrumpfniere.) F. Munk.—p. 1360. Commenced in No. 51, p. 1341.
68 Impact of Two Bullets in the Tissues. (Merkwürdiger Geschossbefund.) Kull.—p. 1364.
69 Unreliability of Dungern Technic for the Wassermann Test. (Ueber die Brauchbarkeit der v. Dungernschen vereinfachten Methode der Wassermannschen Reaktion fur die Syphilisdiagnostik) E. Sonntag.—p. 1365.
70 *To Remove Drug Stains from Skin and Linen. (Entfernung von durch Arzneistoffe verursachten Flecken an der Haut und an der Wäsche) O. Mankiewicz.—p. 1370.

66. **Massage and Exercise in Treatment of Gout.**—Kirchberg is chief of the Berlin Ambulatorium fur Massage, and he advocates both local and general massage as a potent factor in treating and, above all, in warding off gouty attacks. He says that even with podagra the pain from local massage is not enough to prevent the application of this beneficial measure. Even sensitive women bear it well. His course of treatment includes colchicin, hyperemia from intensive application of heat, and the massage. He has found mechanotherapy very useful also for tophi, his assumption being that they are deposited where the circulation of blood and lymph is most sluggish, and hence, while massaging the whole body, he pays special attention to these points. Everything that tends to make the movements of the body juices more active reduces the tendency to manifestations of gout. Superheated air and massage were found particularly useful for gouty eczema. He advises this on the slightest suspicion of gout as a factor in eczema. The relief from itching under the superheated air seems to be constant. Measures to induce sweating are beneficial in gout, as the skin is usually dry and signs of disturbance in the capillary circulation are frequent. Members of gouty families are liable to present this inherited weakness of the skin functioning, especially of the musculature of the capillaries in the skin. This can be regarded as an early symptom of gout, and it calls for prompt training of the skin. Massage increases the ability to sweat and thus renders the gouty better able to take part in sports, a most desirable thing for them.

67. **Contracted Kidney.**—Munk discusses the possibility of differentiating pure hypertrophy of the heart from that with contracted kidney, and the present status of our knowledge as to the causes of hypertonia. He asserts that to assume a contracted kidney from a certain stage of arterial hypertension and hypertrophy of the heart is a mistake in many cases; in certain others it is premature. In three cases reported in detail the clinical diagnosis of contracted kidney was not confirmed by necropsy. The kidneys were practically intact, but the suprarenals were the seat of a tumor. This had evidently entailed hyperfunction of the chromaffin substance, with epinephrinemia. This had induced hypertrophy of the heart, the clinical picture being that of a "chronic nephritis." Munk examined the suprarenals in over 100 cases of chronic nephritis, and found the cortical substance inclined to hyperplasia, especially of the normal fat zone. The findings resembled those in guinea-pig suprarenals after treatment with ovarian substance.

Study of the kidneys of all the cadavers during a recent year at the pathologic institute of the Charité at Berlin showed that in many cases of supposed chronic kidney disease the kidneys were very little, if at all affected, or only secondarily to the hypertrophy of the heart. These were the cases in which the general symptoms, especially the heart disturbances preceded all symptoms on the part of the kidneys. The heart is hypertrophied, the blood pressure 200 mm. mercury or more, but there are no evidences of arteriosclerosis, and albumin or tube-casts are not found in the urine. In one such case in a man of 47 the diagnosis of contracted kidney was changed three years later to myocarditis, and a year later back to contracted kidney. Necropsy showed but slight changes and these only secondary in the kidneys, but there was considerable arteriosclerosis in the brain and coronary vessels. This and two other typical cases are reported in detail out of Munk's extensive experience in this line, all tending to prove that we have as yet no convincing proof that arterial hypertension is the consequence of anatomic changes in the kidneys. The data presented confirm the assumption that the high pressure and even to a certain degree the hypertrophy of the heart are the primary anomaly. This may entail secondarily the sclerosis of the fine blood vessels in the kidneys, Gull and Sutton's arteriocapillary fibrosis. And this may occur alone; in the late stages it may be accompanied by inflammatory or degenerative processes.

Munk refers to recent communications from Umber's clinic (summarized in these columns, February 3, p. 406), which make a similar distinction, but they go only halfway with him, he says. They cling to the kidneys as responsible for the clinical picture, admitting a benign and a malignant form instead of, with Munk, leaving the kidneys out of consideration altogether as not involved, or only secondarily, in the cases with primary hypertension and hypertrophy of the heart. The earliest phase corresponds to an essential hypertrophy of the heart, but this term is no longer used as the kidneys are held responsible; by the time the second phase is reached, the diagnosis of myocarditis is made.

Daily examination of the urine sediment with the polarization microscope is the most reliable means for detecting the earliest involvement of the kidneys. The discovery of highly as in the usual cases of laryngitis, and reflex contraction of the larynx from local irritation seems scarcely likely. He explains the obstruction in the larynx by assuming that the bronchopneumonia, causing intense dyspnea, compels labored respiration with the consequence that there is at times a tendency to a vacuum in the lower air passages and rarefaction of air. This induces the entrance of air from without with greater velocity and under atmospheric pressure above that prevailing in the air passages. If the walls of the air passages are not strong enough to support this pressure, they may be forced together, thus actually closing the lumen more or less, and thus giving rise to the symptoms from organic stenosis. The fact that all his patients in this category were quite young, between 21 months and 6 years old, sustains the assumption that the tender walls of the larynx may be forced together by the pressure from the incoming air under higher pressure than ordinary. In the five cases that came to necropsy the larynx was found practically normal. He gives a number of physiologic tests and tests with rubber tubes, the results of which show the plausibility of this assumption as to the mechanism of nondiphtheric croup with severe derangement of the bronchial passages. The closure of the larynx under these conditions may be increased and facilitated by reflex contracture of the larynx under the influence of the irritation from the impact of the overpressure air, acting like a foreign body to induce reflex contracture. He calls attention to one case in particular in which a diphtheric pseudomembrane was found in one of the finer ramifications of the bronchi but nowhere else. This was evidently a primary diphtheric bronchopneumonia inducing croup although no pseudomembranes had formed in the air passages above this remote focus. Necropsy in the other cases showed the staphylococcus or streptococcus and pneumococcus as responsible for the trouble. Only in one case necropsy showed chronic interstitial laryngitis which may have cooperated or been alone responsible for the croup; it probably antedated the latter. Treatment should include that for the bronchopneumonia as well as relief from the stenosis of the larynx. For the former he commends physical measures as the most active at our command, with intubation to relieve the suffocation. No benefit was derived from diphtheria antitoxin in these bronchopneumonic croup cases.

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90 *Selection of Professors for the Medical Department of Universities. (Een en ander over hooger onderwijs in de geneeskunde. VIII.) G. van Rijnberk.—p. 2133.
91 The Teaching of Pediatrics in the Netherlands. (Bijdrage tot de geschiedenis van het klinisch onderwijs in de Nederlanden.) E. C. van Leersum.—p. 2139.
92 *Cases of Mycosis in Inguinal Region.* (Epidermomycosis inguinalis, veroorzaakt door de Endomyces albicans.) D. Muijs.—p. 2150.
93 *Inherited Sclerosis in Patches. (Een geval van sclerosis multiplex hereditaria?) J. J. van Straaten.—p. 2156.

90. **Selection of Medical Teachers.**—Van Rijnberk emphasizes the extreme importance of selecting the medical professor as he is to serve as model and inspiration for thirty or more yearly classes of students, and his direct influence will extend over more than one generation. He discusses the properties and qualities that the man must have in order to offer some probability of availability, and ways and means for securing the right man for the vacancy.

93. **Inherited Sclerosis in Patches.**—Van Straaten describes the case of a woman of 33 with two little daughters of 8 and 10, all of whom present visual disturbances such as are typical of multiple sclerosis. For twelve years the mother has presented pronounced symptoms of multiple sclerosis; the first symptom was sudden decline in vision to 0.2/60. Some of the symptoms were comparatively transient and yielded place to others. The Wassermann reaction is negative. The oldest child has now atrophy of the optic nerve, and the course of the eye disturbances cannot be explained by any local or general affection other than multiple sclerosis. The other child sees everything green and yellow as she reads but no anatomic changes are perceptible in the eye or elsewhere.

Upsala Läkareförenings Förhandlingar

November 23, 1916, XXII, No. 1-2, pp. 1-140. Last indexed Dec. 16, 1916, p. 1884

94 *The Gastric Proteolytic Enzymes. (Om de proteolytiska enzymen i ventrikeln.) O. Hammarsten.—p. 1.
95 *Improved Methods for Examining for Color Blindness. (Förslag till ändrade bestammelser vid undersökning rorande färgblindhet.) *C. G. Boström, G. F. Göthlin* and H. J. Ohrvall.—p. 23.
96 *The Blood Sugar Content in Case of Juvenile Myxedema. (Blodsockerbestämningar vid ett fall af infantilt myxödem.) N. O. Nilsson.—p. 107.
97 Auscultation Diagnosis of Cavity in Lung Tissue: "Paracavity Râles." (Ett bidrag till kaverndiagnostiken.) A. Wallgren.—p. 116.
98 *Influence of Kind of Infant Feeding on State of Nourishment and Development of Muscles in Late Childhood. (Om spädbarnsuppfödningens inflytande på utvecklingen af hull och muskler under uppväxtåldern.) K. Wedholm.—p. 129.

94. **The Proteolytic Enzymes of the Stomach.**—Hammarsten adds to his historical review of this subject an account of his own extensive research in this line. He calls attention to the great difference between the enzyme production in the stomach of the calf compared with that in dogs and other animals. Nothing elicited in his experiments seems to sustain the single rather than the dualistic theory in regard to the gastric enzymes.

95. **Tests for Color Blindness.**—The eighty-five pages of this monograph on color blindness discuss the present status of the question in Sweden, and this is compared with other lands, especially the tests for color blindness in vogue in Austria, England, France, Germany, Holland, Russia and the United States. The tests used in certain of their railroads and corporations are specified. The drawbacks of the various test methods are pointed out, and a method is described which promises to overcome all drawbacks. The main test is made with a chart on which are evenly scattered patches of color. The patches are of irregular outline, like a layer of tiny pebbles, showing the white background between them all. They are in three colors, a light and a dark reddish lavender and a dull cherry red. All the dull red patches are arranged in such a way that they form a large figure, 3 or 6, but as the red and the lighter lavender are of the same depth of tone, it would be impossible to distinguish the figures unless one was certain as to the difference in color between the red and the lavender. Two of the charts are reproduced in color, and the tentative work with other colors is described as one after the other various colors and tints were tested. None were found so instructive as the ones here adopted for these so-called pseudo-isochromatic tables. The figures on the charts are to be spoken aloud as read, and only from twenty to forty seconds are allowed for the reading of each chart. As the figure is read and named aloud, its outline is traced with a pointer. The feature of these charts is that the colors are all very much alike and two of them differ only in being a little lighter or darker. The advantages of a standard system for testing for color blindness are emphasized, and a model equipment for the purpose is described, with a general outline of the preferable procedure.

96. **The Blood Sugar Content in Myxedema.**—Nilsson's patient was a girl of 17. The sugar content of the blood was about 0.09 per cent. After ingestion of 100 gm. glucose, it ran up to 0.14 per cent. by the fifteenth minute after all the glucose had been taken in the course of forty-five minutes. After a course of thyroid treatment, the increase was higher in proportion and lasted much longer although there was no glycosuria. This diabetes-like curve in the sugar content of the blood, he ascribes to the thyroid treatment, as it harmonizes with what we know of the difference as to the tolerance for sugar with excessive and deficient thyroid functioning. The similar reaction to epinephrin was along the same lines but less pronounced.

98. **Influence of Infant Feeding on Development of Muscles Later.**—Wedholm's estimate was made from examination of 535 children known to have been breast fed and 279 raised entirely on the bottle. The children's ages ranged from 1 to 14 years. During the first two years of life the development of fat and muscle was less in the bottle fed, but from the third year on, no appreciable difference was apparent. Rachitis was evident in the proportion of sixty-nine among the 279 bottle children to seventeen in 535 breast fed.

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RESULTS OF TREATMENT IN HODGKIN'S DISEASE *

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In this summary of our clinical experience in treating sixty-three cases of Hodgkin's disease of certain diagnosis over a period of eight years, we shall exclude, so far as practicable, hypotheses and technical details. We offer an interpretation of the effects of our therapy that is to some extent both incomplete and unsatisfactory. Many of our patients began treatment comparatively recently, and approximate accuracy in the estimation of results depends on a series of well controlled observations extending over a period of at least five years. On the other hand, this is the largest series of cases reported from one group of observers, the only one that has been followed at frequent intervals by coordinated workers, consecutive records thus being obtained of variation in the blood picture, general physical condition and roentgenographic evidence. These observations, so far as possible, have been made independently in an effort to eliminate bias.

Pending the final determination of the cause, course and prevention of this disease, clinicians should have no less interest in its treatment; and this interest must be considerable since, next to tuberculosis, Hodgkin's disease is the commonest and most important disease of the lymphatic system.[1]

Whether one holds with the great majority that the disease is in nature inflammatory, or with the minority that it is neoplastic, concerns an individual sufferer but indirectly, provided every possibility of recovery is vouchsafed.

Our contention that the affection partakes *in effect* of the destructive potentialities of both a malign infection and a neoplasm[2] has been given practical trial in the methods of treatment employed, the appended results of which will to some extent determine the rationality of both.

CLASSIFICATION OF CASES

It is essential to group these cases according to the nature and stage of the process because the extremes, from a therapeutic point of view, are virtually incomparable. Years after Hodgkin's work indicated that he had discovered a clinical and pathologic entity, clinicians came to recognize acute and chronic forms, the former of from two to five months' duration, the latter lasting as many years. Much earlier Trousseau[3] had described three stages of the disease so accurately that his classification is the best available:

1. The latent stage, extending from the onset to the progressive stage.
2. The progressive stage, in which multiple more or less widely separated groups of glands become involved, so suddenly at times as to have been aptly termed explosive, but usually occurring gradually and ending after correspondingly variable intervals in the final or cachectic stage.
3. The cachectic stage, in which the peculiar progressive pallor and other signs of increasing physical and physiologic debility indicate that resistance and rehabilitation have been overcome permanently.

So great is the difference in the clinical picture at the beginning and at the end of these stages, that Trousseau's classification has been amplified, as indicated in the accompanying diagram. Our cases roughly fall into this grouping, but classification of individual cases according to this scheme is admittedly inaccurate and merely tentative.

CLASSIFICATION OF CASES

All Cases 63
- Acute Cases, 5 — Group 1, 5 Cases
- Chronic Cases, 58
  - Stage 1, 8
    - Early — Group 2, 5 Cases
    - Late — Group 3, 3 Cases
  - Stage 2, 25
    - Early — Group 4, 11 Cases
    - Late — Group 5, 14 Cases
  - Stage 3, 25
    - Early — Group 6, 14 Cases
    - Late — Group 7, 11 Cases

TREATMENT

After the reasons for treatment and the methods of treatment have been outlined, their application to each of the foregoing groups will be indicated and the results obtained stated.

General Principles.—At the beginning of this work a mortality of 100 per cent. was universally accepted, although there was lacking the record of a single exception to prove the rule. As experience increased, it was inevitable that methods of treatment should vary. Failures were distressingly frequent, but a few successes in ultimate recoveries and in satisfactory palliation (prolongation of life with decreased discomfort and the maintenance of the patients' optimism) sufficed to show that eventually a more effective therapeusis was at least a developmental probability.

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* Read before the annual meeting of the Wisconsin State Medical Society, Madison, Wis., Oct. 4, 5 and 6, 1916.

[1] Ziegler: Berl. klin. Wchnschr., 1911, 48, 1917.

[2] Yates, J. L., and Bunting, C. H.: The Rational Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., June 12, 1915, p. 1953.

[3] Trousseau: Clin. méd., 1865, 3, 555.

In addition to a conviction that the process was infectious, clinical studies brought a recognition of certain fundamental facts. The most significant of these in importance has hitherto escaped recognition. Although this disease is noncommunicable and very few individuals are susceptible, after the process is once well established, final spontaneous recovery seldom if ever occurs; yet throughout its course repeated and almost successful temporary defensive responses are manifested.

This was assumed to indicate that the infection is of low virulence, and that the affected individuals are incapable of a permanent protective reaction to this toxin, however it may be administered. These premises demand in therapeutic logic an early and adequate subtraction from the amount of the disease in order to place the balance of power emphatically and rapidly on the side of individual resistance and to maintain it there, through the elimination of every possibility of reinfection.

Further, this morbid process imitates the behavior of malign affections, notably of certain types of tuberculosis and of certain malignant neoplasms, especially the carcinomas, in so many details, as, for example, in modes of dissemination, in direct extension and in the nature of local and general resistance, that the nearly identical problems presented seem to demand the same solution. This is an additional indication for surgical intervention.

Finally, the rather numerous "cures" recorded in the literature, following an almost incredible number of methods of treatment, were without exception but temporary improvements. The improvement in the majority of instances occurred in spite of the treatment used, though in some doubtless it was fostered thereby.

Apparently a composite sequential series of treatments is demanded, including everything of proved or possible value, as it was quite out of the question, with one exception, to devise anything, however rational or irrational, that had not already been employed, all with the same ultimate results.

These conditions seemed to us to indicate the following methods:

1. To determine and to eliminate the portal or portals of entry of the infection, those chronic lesions of skin or mucous membrane pointed out by Trousseau in 1865 and curiously never rediscovered, never even given any practical recognition by therapeutists.

2. To extirpate so thoroughly all eradicable involved tissue in suitable cases as (*a*) to place the balance of power decidedly on the side of the individual instead of on that of the disease; (*b*) to eliminate this source of further infection and intoxication, and (*c*) to prevent subsequent physical and physiologic debility through the continued growth of this tissue in situ and consequent pressure and irritation effects on surrounding structures.

3. To keep the balance of power on the side of the patient (*a*) by improving general health through hygienic measures; (*b*) to prevent by radiation, by immune serum and by medication any extension of the disease, and (*c*) to repeat these treatments at intervals of a few months, unless other manifestations of progress of the disease, as determined by the patient's condition and especially by untoward changes in the blood picture, demand more frequent treatments or more radical interventions.

Three of these procedures require explanation.

It has long been held and frequently reiterated, notably of late years by Fischer[4] and Dorothy Reed,[5] that surgery, always of doubtful value, frequently was positively harmful, and that reexcisions were seldom if ever justifiable. These views were based on the repeated observations that local recurrences, usually prompt, were the rule after the excision; and, moreover, that these recurrences often assumed a type more acute than the original process and were prone to hasten rather than to retard death. We have seen such recrudescences appear within a week. The explanation is simple.

A portal of entry (inflamed tonsils, teeth, accessory sinuses, patches of dermatitis, bronchitis, enterocolitis, etc.) is comparable to a primary lesion in carcinomatous processes. The records of earlier, less radical surgical treatment show that these foci of dissemination were constantly neglected, and that therefore local reestablishment of the disease was a natural result, particularly since this affection seems limited at its inception to preexisting lymphoid tissue, only secondarily extending therefrom to invade directly other tissues. Consequently if, in addition to this neglect, the primary excisions are relatively incomplete (and according to our belief none is or can be actually complete in removing all potential lymphoid tissue[6]), and are not therefore followed immediately and at intervals thereafter by intensive Roentgen-ray treatments, distressing experiences of aggravation of the disease are almost certain to occur. In addition, the constant liability to septicemia must not be overlooked.

On the other hand, radical extirpations preceded by removals of portals of entry and followed by careful after-treatment have proved that in favorable (less advanced) cases local recurrence may be reduced to a surprisingly low percentage (possibly less than 5 per cent.), and that when they do occur under these conditions they are usually late and have assumed a much more chronic type of lesion. Such late lesions may be excised safely under local anesthesia, but afterward the site of operation should be treated with the Roentgen ray as if this late procedure were primary.

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[4] Fischer: Deutsch. Chir., 1901, **24,** 104.

[5] Reed, Dorothy: Johns Hopkins Hosp. Rep., 1902, **10,** 133.

[6] So little is known of the number and distribution of lymphoid rests or of the redevelopment of lymphoid structures consequent on excisions that it is impossible as yet to make more than a conjecture as to the sequence of events after a wide, thorough extirpation. Clinical evidence indicates that following even the most thorough and radical excisions of cervical tissue, e. g., for tuberculosis or squamous cell epithelioma, recurrence in unmistakable lymph glands may develop in such numbers and in such distribution as to make it quite certain that either or both of such regenerative processes must have been operative. Years after the final local disappearance of Hodgkin's disease following radical excisions and Roentgen ray, we have seen a simple type of lymphadenitis occur in such areas in a perfectly natural fashion, following an inflamed tooth or a dermatitis of the scalp. Our observations suggest that present conceptions of the normal distribution and function of lymphatic tissue, or of the abnormalities developing under the stress of other types of involvement (tuberculosis or cancer) barely indicate the possibilities in these particulars, possibilities of infinite therapeutic potentiality. Direct and indirect evidence is found in abundance in human pathology to support Murphy's (Murphy, J. B., and Morton, J. J.: Jour. Exper. Med., 1915, **22,** 204) brilliant experimental observations and those of Theobald Smith (Jour. Med. Research, 1915, **32,** 455) indicating the significance of the lymphocyte as an index of local and general resistance to chronic malign affections, inflammatory and neoplastic. Hence our endeavors to protect all lymphatic tissue from infection, as the disease is prone to start in the germinal centers, and also to induce compensatory hyperplasia in actual or potential lymphoid rests. There is evidence that such hyperplastic tissue is not only hyperresistant itself, but also contributes materially to general resistance. For example, after multiple radical excisions with subsequent radiation done for palliation in a patient, there was an interval of months of such continued well-being without any superficial evidence of disease that hopes of recovery were entertained, though the intrathoracic portion of the disease did not improve. General resistance collapsed suddenly after a severe griplike infection. Recrudescences then appeared and developed rapidly in areas hitherto immune. In this connection the work of Murphy and his associates, and the earlier experimental observations of Heineke (Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1904-1905, **14,** 21) and of Warthin (Internat. Clin., 1906, **4,** 243) show the paramount importance of proper dosage of the ray. We have had no experience with radium, and will have none until it can be shown to give at least as good results as the Roentgen ray with no greater dangers.

We believe in the efficacy of extirpation because of examples of recovery following such treatment which we report below; moreover, we have personal knowledge that individuals showing similar forms of the disease and treated similarly by others but without excisions have succumbed after more or less temporary relief. In our experience fever has disappeared, and local general improvement has followed single and multiple extirpations — a result otherwise not obtainable. Two persons hopelessly ill have requested additional operations because of the period of subjective improvement following previous extirpations.

Once more we wish to emphasize the negative to these assertions: If extirpation is not to be complete, it should not be attempted. Meddlesome surgery in Hodgkin's disease is even more dangerous than in cancer. We believe that we have seen hopeless dissemination follow a simple "test excision," and therefore practice them only in doubtful cases, when prepared to follow a frozen section diagnosis immediately with a radical extirpation, or in exceptional cases when an accurate histologic estimation of the nature of the process is of sufficient value as an aid to therapeusis to balance the danger. Such wounds should be treated with the Roentgen ray immediately and repeatedly, as even in acute cases the liability to dissemination is thus reduced materially.

The use of an immune serum presupposes a final proof of the etiologic relationship of *B. hodgkini*. As we cannot offer that proof, we must justify the use of a serum on other grounds.

The administration of the serum when it is sufficiently potent has reduced temperature in certain febrile cases in a manner that seemed to prove it the cause of the defervescence. There has been in both febrile and afebrile cases an improvement in subjective symptoms that was absent when the serum was impotent. One patient was particularly susceptible to this benefit, and could estimate after a few injections the value of any particular supply. Variations in potency were noted in the serums obtained from different horses and at different times from the same horse, and could be estimated only by the effects noted clinically. There was no bactericidal action. However, agglutination and complement fixation tests of the several serums were positive, as a rule, but showed no variations corresponding to their clinical effect.

Whether given subcutaneously so as to filter directly through affected glands or administered intravenously, there occurred usually a fairly prompt and at times considerable enlargement of such glands. In one case with advanced mediastinal involvement, this acute tissue reaction produced a pupillary asymmetry and a dyspnea that was alarming. This reactionary enlargement soon subsides, as a rule leaving the glands smaller than before the administration was begun. Such tissue subsequently removed has failed, in the few instances in which this has been done, to give a positive culture. Negative cultures are the rare exception when the tissue shows the histologic changes of the disease. Patients who tolerate the serum seem to improve more rapidly and to receive more permanent benefits than from the same general treatment but without the serum.

Medication of this group of diseases has consisted since the days of Billroth in the administration of arsenic. It is without specific lasting virtue in any form yet available, from Fowler's solution to salvarsan. Some specific chemotherapy is urgently needed, but wanting this, fresh air, sunshine and proper feeding are infinitely superior to any drugs when there is no indication for tonics and the like.

APPLICATION OF TREATMENT TO GROUPS

Group 1, Acute Cases.—The blood picture, the most reliable single diagnostic evidence, is often obscured by the leukocytosis.[7] It is fortunate that the incidence of this type of the disease is comparatively slight, for it is about as amenable to treatment as is the mastitis carcinomatosa of lactation or melanoma. By the time a diagnosis is made, the outlook is usually hopeless because of the intense intoxication and extensive involvement. However, if this acute process could be converted promptly into a chronic type, ultimate recovery is conceivable, as will appear later.

In these acute types, periadenitis, comparable in its pathologic and prognostic significance to the penetration of gland capsules by cancer metastases, is both early and extensive. This periadenitis makes a satisfactory extirpation extremely difficult or more often impossible. Nothing less, however, promises even temporary relief, as this type of the disease is least responsive to radiation and typifies the rapid uncontrollable recrudescences that have been noted by all observers to follow so regularly in those "cures" obtained by the ray alone. This universal experience, fortified by our own results, has convinced us that mere reduction in the size of the gland masses should not be the primary object in treatment, but rather such therapy as, controlled by the blood picture, leads to an overcoming of the infection.

Group 2, Incipient Cases.—The blood picture is positive and early. In these instances the portal of entry has been recently established, and only a few adjacent glands are beginning to be palpable. Such early diagnoses of the disease are partly fortuitous and partly the result of (1) careful physical examination of patients complaining of nothing more serious than a lack of energy; (2) routine blood counting, and (3) an accurate interpretation of tuberculin tests. So far these early manifestations have been limited to the primary cervical variety of the disease. Tonsillectomy, careful exclusion or treatment of tooth or sinus troubles, roentgenotherapy and hygiene have sufficed to check the disease at this stage, even after test excisions have been made. Exceptionally, the entire demonstrable disease process may be limited to one tonsil and yet the toxemia be sufficient to produce the characteristic blood changes, and even a specific bacteremia may have occurred.

Group 3, Early Cases.—The blood picture is positive and still of the early type. There is unmistakable involvement of the primary group of glands, cervical, axillary or inguinal (the primary mediastinal and retroperitoneal varieties have not been recognized as early as this), but without demonstrable extension therefrom. In this group and every other more advanced group the occurrence of a specific bacteremia of some extent is virtually certain at one or more of the positive phases, though the toxemia alone is possibly capable of inducing an adenitis in both adjacent and remote lymphoid tissue. Elimination of a portal of entry, radical extirpation, roentgenotherapy and hygienic living have sufficed to relieve this uncommon type—uncommon because usually by the time one gland group is materially enlarged, extension to others has already occurred, at least at the time when advice is sought. It is unfortunate that too often patients of this and the preceding group are advised to temporize, or if the diagnosis is suspected are given arsenic and Roentgen-ray or radium treatments, and admonished to avoid surgery as a path to certain death. This attitude would be less open to criticism had any other method of treatment ever produced a cure even at this early stage.

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[7] Bunting: Bull. Johns Hopkins Hosp., 1911, **22**, 248.

Group 4, Moderately Advanced Cases.—The blood picture is positive but not of so early a type, that is, there are fewer lymphocytes, and a moderate eosinophilia has developed. More than one, sometimes all of the main superficial groups are diseased, but extension to the mediastinal or peritoneal glands cannot be more than suspected. These individuals show definite effects of intoxication and are slightly febrile, at least during periods of exacerbation. Eliminations of portals of entry and extirpation of the gland group or groups most involved may induce a permanent regression in other glands under proper radiation. Unless these secondary gland groups are but slightly enlarged and the patient's condition otherwise is indicative of no serious damage, the safest course is to proceed as rapidly as feasible with repeated extirpations to give maximal protection to inaccessible glands and to the lymphadenoid tissue in general. This should be followed by the usual secondary treatment. Even this early in the disease the protective and regenerative powers may be nearly exhausted, and quite probably are, in the patient having the peculiar intermittent, or Murchison type of fever. In all patients the margin of reserve power of resistance is reduced far more than is apparent. The individuals of this group are the ones who above all others change so suddenly from a relatively safe into a quite hopeless condition. After this "explosion" has occurred, an equally sudden and considerable increase in discomfort inspires these unfortunates with a tardy but now impelling desire for relief. They now submit willingly to the palliative measures far more trying than curative procedures would have been but a few weeks earlier.

Group 5, Advanced Cases.—The blood picture may be like the preceding, or may assume later features—a gradual reduction of nearly all cell forms, especially the lymphocytes, with a relative and actually neutrophilic increase. In these persons there is always a demonstrable involvement of deep structures, intrathoracic, intraperitoneal or both, frequently accompanied by more or less extensive involvement of multiple superficial gland groups. The difference between this and the preceding group in physical appearance may be slight, but commonly there are greater pallor, malaise and febrile reaction. Earlier it appeared that in this type palliation alone was obtainable; more recently there is evidence that recovery is occasionally possible. Radical extirpations, almost forbiddingly extensive, must be undertaken, and it is in this group that the administration of serum has seemed to make lesions responsive to treatment otherwise inefficacious. In the majority of these patients, in spite of relatively healthy appearance, the powers of recuperation and, possibly, of lymphoid regeneration have been so seriously and permanently depleted that were the entire Hodgkin's affection suddenly eliminated it is quite likely that the consequently lowered resistance to other types of infection, notably tuberculosis, would render long-continued existence improbable. Differentiation between this and the succeeding group is so uncertain that a complete explanation and apparent understanding of the exact condition by the patient must always precede any attempt at treatment.

Group 6, Cases Probably Hopeless but Capable of Palliation.—The blood picture is of late type; the lymphocytes are reduced (below 15 per cent.), but the platelets are still numerous and the leukocytosis not excessive (less than 25,000).

The patients are still active, and though considerable deep involvement is easily demonstrable, there appears to be such an abundance of physiologic vigor that prolonged relief, if not possible recovery, is conceivable. However, the margin of reserve power is always much narrower than it appears, and tissue regeneration, especially of the hematopoietic system, is nearly if not quite at the vanishing point. Here again treatment should not be undertaken without a frank understanding. If it were not for the great reduction in physical and mental distress usually obtainable, any radical treatment would be positively contraindicated.

Group 8, Cases with Lethal Involvement and Probably Beyond Palliation.—The blood picture is now of the very late character; the lymphocytes are below 5 per cent., there is a neutrophilic leukocytosis, and the platelets may disappear. Occasionally incomplete operations to relieve pressure distress are humane. Opium, scopolamin and cocain are the main reliances. It is remarkable how much reserve strength persists in this group when prolongation of life is regrettable. Unfortunately the number of patients seeking relief is greater in this group than in any other. This fact does not appear in our records, as a positive diagnosis can usually be made by letter, even when from a layman, and without making a blood count. Relatively few such patients come under our direct personal observation.

RESULTS

We have heretofore maintained that a recovery could be accepted only when a person had been free from all evidence of the disease, including a normal blood picture, for five years. This period exceeds so far as could be determined the longest free interval on record. In those rare instances of late recrudescence, the possibility of reinfection after a recovery has been established must be disregarded until the nature and methods of infection are determined absolutely, even though there is evidence of only incomplete temporary protective reactions.

Experience is still insufficient to determine the nature of a "normal blood picture" for individuals who have recovered *after* having had the disease develop beyond the incipient stage. The specific toxin has a selective action on hematopoietic tissues, wherein it provokes primarily a stimulative irritation and later produces progressive degenerative changes in these structures, from which regeneration becomes somewhat proportionately and increasingly impossible. Recovery occurring at any period, after complete regeneration is impossible, is bound to exhibit some evidence comparable to a cicatrix. It now appears that part of such evidence is more or less permanent impairment of the functions of lymphoblastic tissue. Hence a subnormal lymphocyte count need not of itself be indicative of a persistence of the disease, although suggesting reduced resistance, if the other features of the morbid blood picture have returned approximately to normal, as determined not by a single count but by a series of observations extending over several months.

During the first year after the institution of treatment, improvement, however remarkable, is of little or no prognostic value. The first year (and usually the first part thereof) has furnished virtually all of the "cures" recorded in the literature as the result of any methods of treatment.[8] Therefore the results of a year or less in duration will be termed "temporary." During the second year a more accurate judgment is possible, and the term "apparent" is justified, as is also the term "probable" during the third and fourth years. In the fifth year and thereafter, the ultimate results become relatively more certain, though final judgment must be reserved until a complete necropsy presents conclusive evidence years after recovery has been accepted clinically.

RESULTS BY GROUPS

Group 1.—Acute cases; five.

Four patients died in from one to four months; one primary retroperitoneal was discovered postmortem, the other three (two primary cervical and one primary mediastinal) were subjected to various treatments without checking the process. One case, primary cervical, has assumed a chronic type following tonsillectomy, extraction and treatment of teeth, multiple excisions and reexcisions, serum and Roentgen ray. Temporarily this patient is much improved and is still improving. Recovery is conceivable.

Estimated possibility of recovery, less than 5 per cent.

Group 2.—Incipient cases; five.

Two patients recovered, five years and over.

Two cases probable recovery, two years and over.

One case apparent recovery. In this patient the disease was limited to a nodule in one tonsil. Several months after tonsillectomy and Roentgen-ray exposures of the neck, symptoms suggesting extramedullary pressure on the tenth to the twelfth thoracic spinal segments developed. Relief finally followed serum administration and Roentgen-ray treatment of spine.

Estimated possibility of recovery, from 80 to 90 per cent.

Group 3.—Early cases; three.

One patient probably recovered. This patient has been under treatment eight years. His blood picture has never returned to normal and probably never will, but it is conceivable that the disease was eradicated five years ago.

One patient temporarily recovered.

One patient refused operation, and was treated elsewhere with vaccine and the Roentgen ray. Dead.

Estimated possibility of recovery, from 60 to 70 per cent.

Group 4.—Moderately advanced cases; eleven.

Two patients, recovery probable. Improvement during the past five years indicates that the disease is all but overcome.

One patient probably recovered.

One patient apparently recovered.

Five patients temporarily relieved; one of these now shows hopeless involvement.

One patient refused treatment.

One case, primary incomplete excision done elsewhere without previous tonsillectomy. Tonsillectomy; vaccine and Roentgen ray given, followed in a few months by a sudden recrudescence in an acute form. This was attributed, possibly unjustly, to the vaccine.

Estimated possibility of recovery, from 30 to 40 per cent.

Group 5.—Advanced cases; fourteen.

One patient probably recovered; case once appeared hopeless.

Three cases temporarily improved.

Three patients refused treatment; two dead, one dying.

Three cases are in terminal stages. All these patients refused intervention at a critical period when nothing less would benefit.

Two patients are dead; both were temporarily benefited, one (mentioned above) so greatly improved as to raise hopes of a recovery.

One patient has been subjected recently to an incomplete operation elsewhere.

One patient succumbed to operation.

Estimated possibility of recovery, from 5 to 10 per cent.

Group 6.—Very late cases, palliation still possible; fourteen.

Three patients declined to begin treatment. All are dead.

Three patients refused to continue treatment. One dead, two dying.

Four patients survived but a few (from eight to twelve) weeks. All were temporarily improved and for a time appeared to gain. This type without reserve power would be subjected to no treatment were it possible to estimate actual conditions.

Three patients have had from three to twelve months of hope and comfort; two are still active and optimistic. Two of these appeared to be weaker than three of the preceding four patients who responded less.

One patient died during operation.

Estimated mortality, 100 per cent.

Group 7.—Lethally involved cases; eleven.

As stated above, this would be the largest group if it included those who have consulted by letter.

Two palliative operations were attempted: one, a mediastinal decompression which was never begun, as the patient died during the induction of anesthesia; the other, an axillary decompression, which was very gratifying in its relief.

This group included at least two primary mediastinal cases.

Mortality, 100 per cent.

COMMENT

We regret the impossibility of giving more exact figures as to ultimate recoveries, but as 67 per cent. of these patients have come to us within the last two years, and as our work before that time was less standardized, the reason is obvious.

Apparently greater benefits are being obtained as experience increases and methods and judgment improve. We are of the opinion that in about 20 per cent. of all cases as we see them recovery is a possibility at present.

Earlier diagnoses, and the recognition that Hodgkin's disease, if treated promptly and radically, is curable would raise this percentage materially without any change in the treatment outlined above. More definite laboratory and clinical knowledge of this disease as a morbid physiologic process, and clearer conceptions of the defensive mechanisms which combat it, are needed to further an effective rational therapy.

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[8] We have been unable to learn of a single permanent recovery from the disease except those herein recorded, where a positive diagnosis has been made by other than clinical methods of physical examination. Tuberculous lymphadenitis can imitate Hodgkin's disease too accurately to be differentiated except by the morbid histology, and such examples are too common to be disregarded. We assume that the constant failure of the exponents of any method of treatment to make subsequent reports of their patients who improved primarily or to record consistent improvement leading to recovery in other individuals must be accepted as evidence of the inefficacy of those methods.

Average Filipino Food Ration.—The food or ration now used by the average Filipino family is poorly balanced and lacking in nutritive properties, and is poorly prepared and served. It is poorly balanced in that the preponderant element is rice, polished, and as a rule of inferior quality. The protein element, particularly as regards animal protein, is lacking. There is also an insufficiency of fat, and vegetables and fruits are not used in anywhere near the proportions in which they should be used. The food as a rule is poorly prepared, insufficiently cooked, and improperly served; it is eaten in a great majority of instances with the fingers by dipping into a common dish, and meals are at irregular intervals.—J. D. Long, Reprint No. 371, *Public Health Reports,* Oct. 27, 1916.

THE COLLOIDAL GOLD REACTION OF THE CEREBROSPINAL FLUID IN ACUTE POLIOMYELITIS *

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The careful work of Peabody, Draper and Dochez,[1] in 1912, leaves little to be said, from a diagnostic point of view, concerning the cerebrospinal fluid of patients suffering from acute poliomyelitis. Abramson,[2] in 1912, and Neal[3] and Klein[4] in the recent New York epidemic obtained substantially the same results. Inasmuch, however, as the fluid from such patients has given uniform and significant reactions with Lange's colloidal gold, it has been thought worth while to record the results of the application of this test, as a further contribution to the laboratory knowledge of the spinal fluid in this disease.

The recent small epidemic in Baltimore afforded an opportunity to obtain spinal fluid from a number of patients with poliomyelitis. One of us had the opportunity of doing lumbar punctures on most of the suspects reported to the city health department, as an aid in establishing the diagnosis. Fluids in several early cases were thus obtained. A few were taken in cases diagnosed in the outpatient department of the Harriet Lane Home. The majority were patients held in the Children's Hospital School, the institution utilized by the city for the isolation of poliomyelitis patients. There the spinal fluids were obtained through the kindness of Dr. Rosenthal, the physician in charge.

No case in which the diagnosis was doubtful has been included in the series. All the patients showed paralysis in some form or had presented the typical clinical syndrome with the characteristic spinal fluid findings.

TECHNIC

Each cerebrospinal fluid was subjected to the following tests:

1. Cell count was made immediately after withdrawal of the fluid, when possible, and always within two hours.

2. The globulin-albumin content was estimated by means of the Pandy and the Ross-Jones methods. The usual technic was used both in preparation of the reagents and in the application of the tests.

3. The Wassermann reaction was done with 0.25 and 0.5 c.c. quantities with two *antigens*: A, plain alcoholic beef-heart extract, and B, cholesterinized alcoholic beef-heart extract. Antigen A bound 100 per cent. with a known positive syphilitic serum in dilution 1:400 and was not anticomplementary 1:5. Antigen B found 1:900 and was anticomplementary 1:5; used in dilution, 1:20.

4. The technic of the colloidal gold test both in the preparation of the gold solution and the carrying out of the test was the same as advised by Miller, Brush, Hammers and Felton,[5] to whose paper those not acquainted with the details of the test must refer, excepting two slight modifications used in the preparation of the gold solution: (*a*) in distilling the water there was added to each liter of the first distillate 5 c.c. of a saturated solution of barium hydrate. By this method the necessity of absolutely fresh *first* distillation was done away with. In fact, we have used with uniformly good results the single distillation of the day before; (*b*) in the use of oxalic acid, 1 drop of a 1 per cent. solution to the liter was added at 60 C., instead of 10 drops at 85 C.

The gold solution used was absolutely clear to direct and transmitted light.

Five c.c. of the solution were completely precipitated by 1.7 c.c. of a 1 per cent. sodium chlorid solution in one hour.

The entire series was tested by a single lot of gold solution, which on each day used gave a brownish-red color after the addition of 2 drops of alizarin red to 5 c.c. Too much emphasis cannot be laid on this point. Slight changes in the reactions of the reagent give widely diverging results.

The solution gave a typical reaction with a known paretic cerebrospinal fluid and absolutely negative reaction with four different known negative fluids.

RESULTS

Fifty-seven fluids from patients with poliomyelitis have been tested. These have been grouped into three tables according to the stage of the disease. Three fluids from normal children which were used as controls have been included, one being shown in each table. The cases in each table are arranged in order according to the day of the disease.

Table 1 is made up from fluids obtained during the acute illness. Of these cases, one (H. L. H. No. 10153) was nonparalytic; two (O. S. 7 and O. S. 4) were preparalytic; and in the rest, the paralysis was either progressing or just arrested. The gold chlorid curve given in these cases is singularly constant and occurs in the so-called "luetic zone." Flocculation begins in the first tube in all but one, and reaches the maximum in from 1:40 to 1:160, in two instances persisting into 1:320. Decolorization usually proceeds as far as "blue."

In other words, in these fifteen cases in the acute stage of the disease, thirteen react with colloidal gold in the "luetic zone," and two (O. S. 7 and O. S. 5) show a slight tendency to precipitate in the higher dilutions, suggestive of the meningitic zone.

Johnston[6] has recently published an article in which he used the colloidal gold test in four cases of acute poliomyelitis, the day of the disease not being mentioned, in which the reaction took place in the "luetic zone." That the reaction is not so transient a one as his work would seem to indicate is shown in Tables 2 and 3.

After the subsidence of the acute illness, as is well known, the cells tend to decrease in number very rapidly, but the globulin content may increase. Corresponding to this, we often found in the ensuing two weeks (from the eighth to the twenty-first day) a tendency for the gold to show more pronounced flocculation in the first tubes and to decolorize more intensely in the higher dilutions. This is well shown in Table 2. The gold chlorid curve for the period, consequently, may show a "meningitic curve," as is illustrated by Case R. G. 3. One of the cases included in this table (P. 98) gave a "paretic" curve. The fact that the spinal fluid and blood of this child gave a positive Wassermann reaction might explain this reaction, although clinically there seems to be no sign of juvenile paresis.

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* From the Laboratory of Immunology and Bacteriology and the Department of Pediatrics, the Johns Hopkins University, Medical Department.

[1] Peabody, Draper and Dochez: Jour. Exper. Med., Monograph 4, June 24, 1912.

[2] Abramson, H. L.: The Spinal Fluid in Poliomyelitis and Its Differentiation from Fluids of Other Infections, Am. Jour. Dis. Child., November, 1915, p. 344.

[3] Neal: New York Med. Jour., 1916, **104**, 167.

[4] Klein: New York Med. Jour., 1916, **104**, 219.

[5] Miller, S. R.; Brush, N. D.; Hammers, J. S., and Felton, L. D.: A Further Study of the Diagnostic Value of the Colloidal Gold Reaction, Together with a Method for the Preparation of the Reagent, Bull. Johns Hopkins Hosp., 1915, **26**, 391.

[6] Johnston, M. R.: A Study of Normal and Pathologic Cerebrospinal Fluids in Children, Am. Jour. Dis. Child., August, 1916, p. 112.

From the third week, there is a strong tendency for the spinal fluid to clear, the cell count having returned to normal, and the globulin gradually disappearing. The change has appeared in the gold chlorid reaction as early as the eighth day, but this is unusual. The first normal fluid encountered in our series was on the thirty-second day (P. 83), and we often found strong reactions as late as the eighth week after the onset, as is well shown by Case P. 83, which shows precipitation in the higher dilutions on the fifty-second day. In the main, however, "luetic zone" reactions are encountered, and they persist and may be found as late as eight weeks after the onset of the disease: These facts are brought out by the study of Table 3.

TABLE 1.—ACUTE STAGE, FIRST WEEK

No.	Name	Age, Years	Day of Disease	Cells per C.mm.	Ross-Jones	Pandy	Wassermann Reaction		Colloidal Gold Reaction								
							Antigen										
							A	B	Dilution of Cerebrospinal Fluid								
							.25 .5	.25 .5	1:10	1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560
H. L. H.	Catherine S..	5	3	70	+	+	0 - 0	0 - 0	1	1	1	2	2	1	0	0	0
O. S. 1	Christy.......	1½	3	135	+	+	0 - 0	0 - 0	1	1	2	3	3	1	1	0	1
O. S. 2	James M.....	2	3	110	+	+	0 - 0	0 - 0	1	1	2	2	1	1	0	0	0
O. S. 6	Ernest C.....	1½	3	70	+	+	0 - 0	0 - 0	1	1	2	3	3	1	0	0	0
O. S. 7	Robert S.....	4	3	45	+	+	0 - 0	0 - 0	1	2	2	3	3	3^+	2	1	0
P. 103	Korsunsky...	3	3	130	±	+	0 - 0	0 - 0	1	1	2	2	1	1	0	0	0
O. S. 3	Lillian W....	2	3	1	++	+++	0 - 0	0 - 0	1	1	2	2	1	1	0	0	0
O. S. 4	Charles M....	3	4	81	+++	++++	0 - 0	0 - 0	1	1	2	2^+	2^+	2	1	0	0
O. S. 5	Marjorie M..	3	4	10	+++	++++	0 - 0	0 - 0	1	1	2	3	3	1	1	0	0
O. S. 8	Thelma G....	2	4	65	+	+	0 - 0	0 - 0	0	1	2	3	2	1	0	0	0
O. S. 1	Christy N....	1½	4	123	+	+	0 - 0	0 - 0	1	1	1	2	1	1	0	0	0
P. 101	Benj. D......	1½	4	32	±	+	0 - 0	0 - 0	1	1	1	2	2	1	0	0	0
R. G. 1	Eugene N....	2	5	30	+	+	0 - 0	0 - 0	1	1	2	3	3	2	1	1	0
H. L. H. (10153)	Birtzal.......	¾	6	170	±	±	0 - 0	0 - 0	1	1	2	2	2	1	0	0	0
O. S. 9	Adrian M....	2	6	25	++	++	0 - 0	0 - 0	1	1	2	3	2	1	0	0	0
H. L. H.	Pollock.......	4	0	5	0	0	0 - 0	0 - 0	1	1	0	0	0	0	0	0	0

TABLE 2.—DISEASES IN SECOND AND THIRD WEEKS

No.	Name	Age, Years	Day of Disease	Cells per C.mm.	Ross-Jones	Pandy	Wassermann Reaction		Colloidal Gold Reaction								
							Antigen										
							A	B	Dilution of Cerebrospinal Fluid								
							.25 .5	.25 .5	1:10	1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560
P. 99	Davis.........	21mo.	9	70	++	++	0 - 0	0 - 0	2	2	2^+	3^+	3^+	2^+	2	1	0
P. 101	Droatman....	18mo.	9	5	+	+	0 - 0	0 - 0	+	+	1	1	1	+	0	0	0
R. G. 3	Thelma G....	14mo.	10	33	+	++	0 - 0	0 - 0	2	2^+	3	3^+	3^+	3^+	2	1	0
H. L. H. (12069)	Edw. J.......	2	10	20	+	++	0 - 0	0 - 0	2	2	2	2^+	2^+	1	0	0	0
P. 103	Korsunsky...	3	10	8	+	+	0 - 0	0 - 0	+	+	+	1	+	0	0	0	0
P. 98	Bayton.......	4	11	11	++	++++	25-50%	25-75%	5	5	5	3	2^+	2	2		
H. L. H. (12374)	Gladys B.....	8mo.	11	20	+	+	0 - 0	0 - 0	1^+	1^+	2	2^+	2^+	1	+	0	0
P. 104	Christy.......	15mo.	11	2	+	++	0 - 0	0 - 0	0	+	1	1^+	2	+	0	0	0
O. S. 6	Ernest C.....	15mo.	11	1	+++	++++	0 - 0	0 - 0	2	2	2	2	3	3	2	1	0
P. 96	Herbert L...	8	14	6	+	+	0 - 0	0 - 0	1	1	2	2	1	1	0	0	0
P. 101	Droatman....	18mo.	14	2	++	+	0 - 0	0 - 0	1	1	1^+	2	2	1	+	0	0
H. L. H (12374)	Gladys B.....	8mo.	18	2	++	++	0 - 0	0 - 0	1	1	1^+	2	2	1	+	0	0
P. 81	Maffel M.....	15mo.	21	4	+	+	0 - 0	0 - 0	2	2^+	3	3	2^+	2	1	0	0
P. 95	Banks G.....	8mo.	22	12	+	++	0 - 0	0 - 0	2	2	2^+	4	3	3^+	2	1	0
H. L. H.	Woolford....	3	0	3	0	0	0 - 0	0 - 0	1	1	1	0	0	0	0	0	0

In view of the foregoing significant reactions in the colloidal gold test, and from facts as tabulated in the recent work of Miller, Brush, Hammers and Felton[5] and other workers, showing that clinical syndromes besides syphilis may give typical zonal reactions, and also because of the objections raised by the clinician that these terms are rather confusing, it is suggested that instead of the "paretic," "luetic" and "meningitic," the terms "first," "second" and "third" zones be used. This would allow an exact description of the reaction without suggesting a probable etiologic relationship, and enable the clinician from his general knowledge of the reaction to correlate the laboratory with the clinical findings in arriving at a more exact diagnosis.

The term "paretic zone" does not have the objection that is so manifest in "luetic zone," inasmuch as the precipitation in zone occurs practically only in paresis, tabes dorsalis and multiple sclerosis.

Regarding the "luetic zone" the following references are significant: Debeneditti and Olivero,[7] in a series of thirteen cases of tuberculous meningitis, give three in the "luetic zone." Eicke[8] states that early tuberculous meningitis gives a reaction in dilutions from 1:40 to 1:80. Grulee and Moody[9] give several reactions in the "luetic zone" in conditions other than syphilitic. Johnston[6] gives several miscellaneous fluids reacting in the "luetic zone." In the compiled table of Miller, Brush, Hammers and Felton, 204 cases in the miscellaneous group, out of 1,808, give a precipitation in the "luetic zone." From these data, together with the series of fifty-seven cases of acute poliomyelitis here described, and the four cases described by Johnston,[6] it no longer seems desirable to continue the use of the term "luetic zone."

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[7] Debeneditti and Olivero: Riforma med., 1914, **30**, 906.

[8] Eicke: München. med. Wchnschr., 1913, **60**, 49, 2713.

[9] Grulee, C. G., and Moody, A. M.: Lange's Colloidal Gold Chlorid Test on the Cerebrospinal Fluid in Congenital Syphilis, The Journal A. M. A., July 5, 1913, p. 13.

The term "meningitic zone" is not open to such strong objection as the others, inasmuch as it is but rarely that other conditions give curves simulating it. However, for uniformity's sake, we feel that it could well be called the "third zone."

CONCLUSIONS

1. In the acute stage of poliomyelitis, the spinal fluid reacts with colloidal gold in dilutions of from 1:40 to 1:160, producing a maximal decoloration of 3 ("blue").

2. In the second and third weeks the reaction is practically the same as in the acute stage, with a tendency to clear up in some cases and a precipitation in the higher dilutions in others. There is no constant rule.

3. In the fourth to the eighth week the colloidal gold reaction runs practically to the globulin-albumin content, persisting in some cases to the eighth week and beyond, but still occurring in dilutions of from 1:40 to 1:160.

4. As the spinal fluid in acute poliomyelitis reacts constantly in the same zone, the gold chlorid reaction is helpful in the diagnosis of this disease.

5. We deem it advisable to use the following nomenclature in reading the reactions of Lange's colloidal gold test:

(*a*) Zone 1 (or paretic zone), maximum precipitation from 1:10 to 1:160, with complete decolorization.

(*b*) Zone 2, maximum precipitation from 1:40 to 1:160, with decolorization up to 4 (light blue).

(*c*) Zone 3, maximum precipitation beyond 1:160.

TABLE 3.—CONVALESCENT STAGE, FOURTH TO EIGHTH WEEK

No.	Name	Age, Years	Day of Disease	Cells per C.mm.	Ross-Jones	Pandy	Wassermann Reaction		Colloidal Gold Reaction								
							Antigen		Dilution of Cerebrospinal Fluid								
							A	B									
							.25 .5	.25 .5	1:10	1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560
P. 93	Herbert......	8	22	18	++	++	0-0	0-0	1	1	2	2	2	1	0	0	0
P. 71	Lloyd B......	3	27	1	+	+	0-0	0-0	1	1	1	2	2	0	0	0	0
P. 100	Norman D...	3	28	4	++	++	0-0	0-0	1+	2	2+	2+	2+	2+	2+	1	0
P. 65	John J.......	8mo.	28	4	+	+++	0-0	0-0	1	1+	1+	3	2	1	0	0	0
P. 91	Malcolm S...	3	28	2	0	+	0-0	0-0	1	1	1+	2	2	1	0	0	0
P. 94	Elmer L......	6	29	3	+	+	0-0	0-0	+	1	1+	1+	1	+	0	0	0
P. 74	Mildred W...	9mo.	31	15	++	++	0-0	0-0	1	1+	2	2+	1+	1	+	0	0
P. 83	James E.....	3	32	4	0	0	0-0	0-0	0	0	0	+	0	0	0	0	0
P. 100	Norman D...	3	32	4	+	+	0-0	0-0	1	1+	1+	2	2	1	0	0	0
P. 84	Luber F......	3	35	2	+	+++	0-0	0-0	1+	1+	1+	2	1	1	0	0	0
P. 47	Emily W.....	6mo.	37	4	++	++	0-0	0-0	1	1	1	2	3	2	1	1	0
P. 56	Dillalumt.....	21mo.	39	8	0	0	0-0	0-0	+	+	+	0	0	0	0	0	0
P. 58	Hoffman.....	6	39	3	+	+++	0-0	0-0	2	2	2	2+	3	3	1	1	2
P. 68	Fisher........	3	39	1	+	+	0-0	0-0	+	1	1+	1+	1	+	0	0	0
P. 70	Alfred E.....	6	39	1	++	++	0-0	0-0	+	+	1	2	2+	2	+	0	0
P. 46	Gladys D.....	4	40	2	++	++	0-0	0-0	0	0	+	1	1	+	0	0	0
P. 42	Kathrine W..	2	40	4	+	+	0-0	0-0	1	1+	2	2	2	1+	1	0	0
P. 30	John B.......	10	42	6	++	+	0-0	0-0	0	+	1+	2	1	+	0	0	0
P. 37	Lillian L.....	2	42	6	++	++	0-0	0-0	1	1	2	2	2+	1	0	0	0
P. 45	Anna V......	4	42	4	+	+	0-0	0-0	1	1	1+	2	2	1	0	0	0
P. 43	Susie B.......	2	42	13	+	++	0-0	0-0	0	+	1	1+	+	0	0	0	0
P. 55	Benj. B......	15mo.	44	1	0	+	0-0	0-0	1	1	2	1	1	0	0	0	0
P. 32	Naomi L.....	1	46	2	++	++	0-0	0-0	1	1	1+	2	2+	2	1	+	0
P. 26	Dorothy H...	4	50	2	++	++	0-0	0-0	1	1+	2	2	1+	+	0	0	0
P. 27	Carr..........	3	52	3	+	+	0-0	0-0	1	1+	2+	3	3	1+	1	0	0
P. 17	Eshbury......	15mo.	52	4	+	+	0-0	0-0	1	1	1	1	1+	2+	3	0	0
P. 19	Mildren.......	3mo.	54	3	+	+	0-0	0-0	1	1	2+	2+	1	0	0	0	0
P. 46	Mary B......	4	45	3	+	+	0-0	0-0	1	1+	3	3	2	1	1	0	0
P. 90	William M...	2	0	2	0	0	0-0	0-0	1	1	1	1	0	0	0	0	0

A Pessimistic View of Man.—What a chimera, then, is man! what a novelty, what a monster, what a chaos, what a subject of contradiction, what a prodigy! A judge of all things, feeble worm of the earth, depositary of the truth, cloaca of uncertainty and error, the glory and the shame of the universe!—Pascal, Thoughts.

CLINICAL STUDY OF FOUR HUNDRED CASES OF ANTERIOR POLIOMYELITIS *

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My object is to present the observations obtained by a close study of 400 cases of anterior poliomyelitis of the 1916 epidemic, seen at the clinic of the Hospital for Deformities and Joint Diseases.

These cases made their appearance at an average of about ten weeks after onset of illness, and show: (1) regional distribution; (2) a large amount of cranial nerve involvement; (3) muscular distribution; (4) unreliability of the reaction of degeneration to permit judgments concerning the extent of muscle paralysis, and (5) numerous deformities.

1. Of the entire series, thirty-two patients, or 8 per cent., showed no evidence of muscle paralysis. Of the remaining 368 patients, 286, or 78 per cent., showed some involvement in the lower extremities. Thirty-eight per cent. showed involvement of only one limb. Of this number, 10 per cent. were of the upper extremity and 28 per cent. of the lower. In 20 per cent. of the cases there was some form of trunk paralysis, showing that it has been quite a common occurrence. The right and left sides of the body were equally attacked.

The extent of paralysis differed from a part of one leg to an involvement of both legs, both arms, both sides of the abdomen and back, and also the larynx, which is slight. Between these two extremes there was seen every conceivable type of combination obtainable. Table 2 illustrates this very clearly.

2. In fifty-one cases, or 13 per cent., the cranial nerves were involved. In six cases, two different nerves were involved at the same time. The fifth nerve was affected 1 time; the sixth nerve, 1 time;

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* Read before the Clinical Society of the Hospital for Deformities and Joint Diseases, Dec. 28, 1916.

the seventh nerve, 38 times; the tenth nerve, 4 times, and the eleventh nerve, 13 times.

3. In past epidemics, it seems that the muscles most often attacked in the leg were the peroneals; during the present epidemic it has been the tibialis anticus and quadriceps extensor which have most often suffered.

TABLE 1.—REGIONAL DISTRIBUTION

Region	No. Cases Involved	No. Parts Involved	Right	Left	Involved Alone	In Combination
Leg	286	437	207	230	183	103
Arm	111	139	72	67	45	66
Face	38	...	19	19	24	14
Abdomen	46	79	35	44	1	45
Back	53	91	44	47	...	53
Neck	3	4	3	1	...	3
Sternomastoid	2	...	...	2	...	2
Larynx	3	...	...	...	...	3
Palate	3	...	...	...	...	3
Jaw	1	...	...	...	1	...
Eye	1	...	...	...	...	1

In the arm, the discrimination for the deltoid is again shown, followed by the pectorals, etc. (Table 3).

Not all the muscles were completely paralyzed, as there was some degree of motion in about 25 per cent. of all muscles involved.

The most frequent combination of muscles attacked in the leg has been those supplied by the anterior tibial nerve.

In the thigh, the quadriceps, adductors and hamstrings have shown a distinct tendency to be involved together (a mixture of both the lumbar and sacral plexuses).

When the external rotators of the hip were involved, the internal rotators always accompanied them. In no case were they affected alone. In the arm, the deltoid, pectoralis major and latissimus dorsi have been closely associated in paralysis. The latissimus dorsi was affected in fifty-one cases, and in fifty of these the foregoing took place. The "upper arm type" or the "forearm type" of paralysis did not occur in any instance.

TABLE 2.—EXTENT OF PARALYSIS

One leg	111
Both legs	72
One arm	41
Both arms	4
All extremities	5
Three extremities	9
Arm and leg (same side)	6
Arm and leg (opposite side)	5
Trunk	2
Face alone	24
Jaw	1
Arm, leg, face (left)	1
Leg and back*	21
Leg and abdomen*	10
Leg, abdomen and arm*	10
Leg, abdomen and back*	6
Leg, back and arm*	6
Arm and back*	2
Arm and abdomen*	2
Leg and face*	5
Arm and face*	2
Leg, arm, back and neck*	2
Leg, arm, back and abdomen*	8
Leg, back, abdomen and larynx	2
Arm, palate and face*	1
Leg, palate and face*	1
Face and eye*	1
Leg and sternomastoid*	1
Arm, face and sternomastoid*	1
Arm, back and abdomen*	1
Leg, arm, abdomen and face*	1
Leg, arm, abdomen, face and back*	1
Leg, arm, abdomen, back and neck*	1
Leg, arm, abdomen, back and larynx*	1
Leg, arm, abdomen, back and palate*	1
Cases showing no paralysis	32
Total	400

* It may be one or both in any of the parts affected; in order not to lengthen the list, this is not specified.

4. To judge the extent of muscle paralysis by the reaction of degeneration is entirely fallacious. Muscles showing absolutely no action have given normal electrical reactions both to faradic and to galvanic currents. Some, with partial motion, showed various degrees of electrical degeneration, and in one or two instances, a complete reaction of degeneration was obtained, that is, failure to respond to faradism (moderate strength) and also to galvanism at 15 milliamperes both to the cathodal and to the anodal closing and opening currents.

Whether a true prognosis as to ultimate recovery may be given judging by the reaction of degeneration will be brought out in a later paper.

5. In only a few instances, comparatively speaking, was the deformity of talipes equinus encountered. Of the others, especially in the upper extremity, there were many.

Too much stress cannot be laid on the prevention of deformity.

It must be borne in mind that practically every group of muscles has an antagonistic group. The flexors have the extensors, the inverters, the everters, the abductors, the adductors, the internal rotators, the external rotators, etc.

TABLE 3.—MUSCULAR DISTRIBUTION

Muscle	Involved	Partial	Complete
Tibialis anticus	369	101	268
Quadriceps extensor	302	78	224
Peronei (longis and brevis)	251	62	189
Hamstrings	222	77	145
Gastrocnemius and soleus	215	52	163
Extensor longus digitorum	215	66	149
Extensor longus hallucis	215	65	150
Adductors	205	44	161
Internal rotators	173	18	155
Tibialis posticus	171	10	161
Iliopsoas	147	55	92
Gluteus maximus	127	32	95
Flexor longus digitorum	97	29	68
Flexor longus hallucis	97	29	68
External rotators	76	18	58
Deltoid	119	37	82
Pectoralis major	88	25	63
Triceps group	65	30	35
Biceps group	58	24	34
Latissimus dorsi	51	10	41
External rotators	43	1	42
Extensor communis digitorum	34	18	16
Internal rotators	31	3	28
Supinator longus and brevis	26	5	21
Flexor carpi radialis and ulnaris	22	11	11
Extensor longus pollicis	22	12	10
Flexor sublimis and profundus digitorum	20	10	10
Pronator teres (group)	19	6	13
Flexor longus pollicis	16	8	8
Extensor carpi radialis longior and brevis, and extensor carpi ulnaris	15	8	7
Serratus magnus	11	3	8
Trapezius	9	5	4
Rhomboid group	4	...	4
Thenar eminence	3	...	3
Lumbricales and interossei	2	...	2
Abdomen	79	28	51
Back	91	36	55
Face	38	12	26
Neck	4	2	2
Larynx	3	3	...
Palate	3	3	...
Jaw	1	1	...
Sternomastoid	2	2	...
Eye	1	1	...

The possibility of flexion deformity at the knee, hip, fingers, wrist and elbow are just as favorable as one at the ankle (talipes equinus).

A healthy lattissimus dorsi with a paralyzed deltoid will do just as much damage in the shoulder as a healthy gastrocemius and soleus muscle with a paralyzed tibialis anticus will do in the ankle.

Nearly every patient having tibialis anticus paralysis had either a posterior splint or some other form of retentive apparatus to prevent the deformity of talipes equinus. Yet there was absolutely no appliance of any sort to prevent a paralytic deformity in: (1) 90 per cent. of shoulder patients having deltoid paralysis; (2) those having a paralysis of half the neck; (3) those having a paralysis of half the back; (4) those in whom the abdomen was completely paralyzed and the children walk with extreme lordosis; (5) those having a paralysis of the internal rotators of the hip with good strong external rotators, and (6) those in whom the calf muscles were paralyzed and the children walked on their heels.

Why more importance should be attached to a prevention of talipes equinus than to any other form of deformity, which often proves of a more serious nature, is incomprehensible. One deformity is as bad as another, if not worse.

Any joint in the body in any of its functional directions may be the seat of deformity.

Every deformity results in stretched muscles which markedly lessen the patient's chances for recovery, a state of affairs entirely unnecessary and easily prevented.

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FALLACY OF DENYING FUNCTIONAL SIZE CHANGES IN NERVE CELLS FROM COLLECTIVE CELL AVERAGES *

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Kocher[1] has recently published several papers which make a sweeping denial of any morphologic evidence of functional activity in nerve cells. He bases this conclusion chiefly on his failure to find constant differences in the average size of cells between exercised and undisturbed animals. In these measurements, he employed the polar planimeter, which gives from camera lucida outlines the exact area of cells in microscopic sections.

It became necessary for me[2] to test my own positive results for functional activity by this method, particularly since Kocher's destructive criticism was directed mainly at myself. From long experience, however, with the polar planimeter in calculations from individual cell reconstructions, there was no reason beforehand to expect any important differences.

The planimeter was tested, not by averaging all cells measured from any region irrespective of their functional stage, as Kocher did (collective averages), but by applying it to the same number of cells from every functional stage. Data of diameter measurement with volume estimation, which has been my method, were obtained concurrently from the same series from an exercised and control animal, in order to compare the two methods. A graphic charting of the data shows that the two methods afford results absolutely identical in every detail, both in size and in nucleus-plasma relations. Previous conclusions for functional size changes and species size relations are verified.

The value of the planimeter method is as a mutual check on the diametral method. Alone it has no special or superior value; but since it gives only two dimensions, with smaller variations than in volume calculations, it is quantitatively misleading.

Kocher's method, therefore, has no peculiar applicability in settling the problem. It remains to point out that his handling of the data by means of collective averages, which has been in fact the usual procedure, involves just the inconstant results which he obtained. If one measures the individual stages correlated as functional, he will find very wide variations in their size in any cell type in the same animal. For example, the stages of shrinkage first described by Hodge[3] are only one-half the area and one-fourth the volume of cells approaching chromatic exhaustion. The resting cell type is only one-half the volume of the initial enlargement of function. In their function, cells first enlarge, then they shrink, and from that shrinkage progress to a secondary enlargement. Is it not obvious to any one that when two animals are compared on this basis of averaging all cells together, the result depends on the distribution of cells and a wide range of results is possible? The comparison may or may not prove anything about the functional state. It is possible in two combinations of cells closely related in degree of function that one would run smaller, the other larger than the average.

In illustration, Hodge found a smaller size in the stimulated ganglion as compared with the unstimulated, because the majority of cells were in a state of shrinkage. But as they pass from this state of shrinkage to a progressive hypertrophy in prolonged stimulation, enough of these larger cells would first equalize a comparison, and then turn the average the other way. So Kocher did not consistently obtain Hodge's results. Yet, as a matter of fact, accepting the smallest differences, he did duplicate Hodge's results in eleven out of fifteen series from the spinal cord and associated ganglia, and the exceptions which misled him follow to a noticeable degree the explanation given.

Further, as Kocher dealt with areas and ignored the third dimension, it follows that there was less range of variation in the quantitatively smaller area figures, and the averaging had smaller differences to smooth out in the same animal. That is, a preponderance of large cells or of small cells would have less effect.

It is not a matter of chance that the cell sizes in Kocher's case approximated each other so closely in contrasted animals, but an actual basis can be stated for it. This is the tendency to a uniformity of absolute size for corresponding nerve cells of a species. For this the theoretical basis is that function is the sole determinant of absolute size in such a specialized cell. It is understandable on the basis of average general functional usage. The exceptions thereto so far have been the functional oversize, the functional hypertrophy and the functional undersize, the atrophy, used in this general sense to include functional disuse, depression effects, and lack of functional development. It makes the nerve cell agree with Conklin's[4] conclusion that within the same species cell size is practically constant. It is admittedly not demonstrated in the great number of individual instances required as an induction. But Kocher's small differences between an animal and its control are understandable on this basis, and the results, so far as they prove anything, confirm the tendency to this size uniformity. The induction relates specifically to the resting cell type, but the distribution of functioning cell sizes above and below it would make the averaging of all cells approximate a common size. Certainly, such results do not con-

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* Read before the American Association of Anatomists, New York, December, 1916. Complete data will appear in the Journal of Comparative Neurology.

[1] Kocher, R. A.: The Effect of Activity on the Histologic Structure of Nerve Cells, The Journal A. M. A., July 22, 1916, p. 278; Jour. Comp. Neurol., 1916, **26**, 341.

[2] Dolley, D. H.: Jour. Med. Research, 1909, **20**, 275; 1909, **21**, 95; 1910, **22**, 331; 1911, **24**, 309; 1911, **25**, 285; Am. Jour. Physiol., 1909, **25**, 151; Jour. Comp. Neurol., 1914, **24**, 445; Arch. f. Zellforsch., 1913, **9**, 485; Anat. Rec., 1916, **10**, No. 3.

[3] Hodge, C. F.: Jour. Morph., 1892, **7**, 1.

[4] Conklin, E. G.: Jour. Morph., 1912, **23**, 159.

found me in respect to functional size changes, for such size variations have been smoothed out by averaging and remain to be accounted for.

It may be said that most of the discrepant results in the literature depend on this method of collective averaging, though on the other hand it did give certain correct results to the pioneers because of the tendency to size uniformity.

With the false assurance from these results, Kocher was animated to deny all other morphologic evidences of function. He admits, indeed, the existence of all the stages of function previously described by me. The importance of this as the foundation of all succeeding work he strangely does not appreciate, though such an objective confirmation from a professed critic will doubtless carry unhoped for weight. He does not explain them; to him they are tacitly nonsignificant; but he sees them. Instead, because he finds them in the control as well as in the exercised animals, he jumps to the idea that nothing has happened, and hence to a final conclusion of lack of qualitative differences from function. Here it is only that our ideas of the significance of an identical conclusion differ, for it is simply a fundamental conclusion that qualitative differences are to be ruled out. Instead of being destructive to me, it is the first induction I should wish to be confirmed, as it throws comparative function solely on the quantitative principle. The comparison must be made in terms of working cells to resting cells.

He sought for quantitative differences, it is true, by means of differential counts, but failed to find them. The explanation regrettably is that his data are of doubtful accuracy: first, since certain stages as diagnosed do not accord with his text statements and are unlikely of the stated occurrence on the basis of relative differentiation; second, the one stage most liable to confusion by one inexperienced is given scant attention. Since he denies progressive changes in the morphology of the cells, it is evident that he was indifferent to the finer points necessary for a differential diagnosis.

An anatomic basis for function stands.

CONCLUSIONS

Collective averages of cells, irrespective of their functional state, and resulting size variations, which have been the usual basis of comparison between individuals, afford inconstant results and should be discarded. It is a scientific solecism that function, the one faculty which results from the differentiated state, is the one factor which has been neglected in the measurement of differentiated cells. To deny functional size changes in nerve cells on this basis because of small and inconstant variations between one animal and another, as Kocher has done, is a fallacy, and such results indicate only the tendency to a uniformity of species size for corresponding nerve cell bodies.

To investigate the size changes of function, it is necessary to identify and measure functioning stages and the resting type from which they spring. This gives present function. The resting cell alone gives species size, its mean and its variations, and species relativity of plasma to nucleus, uncomplicated by present function.

Making a Choice.—The choice of a profession or trade is not a question to be decided by egotism, ambition or heredity, but by the individual's aptitude. In estimation of this the physician should have the deciding voice.—C. Juarros.

THE RÔLE OF THE SEMINAL VESICLES

IN PERSISTENT NONGONORRHEAL INFECTIONS OF THE POSTERIOR URETHRA AND BLADDER [*]

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It is well known that the seminal vesicles may become involved during the course of a gonorrheal urethritis, and, if the process remains active in the vesicles, may prolong urethral infection in a most stubborn manner. The constant or intermittent feeding of new infection onto the prostatic urethra keeps active the inflammatory processes of the urethral mucosa, just as inflammatory processes in the vesical mucosa are activated by renal infections.

It is probably not so universally recognized that the seminal vesicles, when the seat of a nongonorrheal or pyogenic infection, may result in prolonged suppuration of the posterior urethra and trigon. These infections may be even more stubborn than those of gonorrheal nature. To me it has been a new realization to find how many of these long-standing bacillary and coccal infections involving the posterior urethra and at times the bladder have been secondary to unsuspected vesiculitis.

Every urologist is familiar with the type of case to which I refer. In some cases the infection assumes the form of a bacteriuria with occasional exacerbations in which a visible amount of pus can be detected and with periods of more or less urinary irritability. Sometimes the patient is seen with a frank cystitis and with a history of repeated previous attacks. Under treatment applied to the local condition, and even often without definite treatment, the symptoms subside and the urinary condition may improve until the most careful examination is necessary to demonstrate the presence of bacteria in the urine. After a varying length of time the process repeats itself. Most often the urine at all times supplies definite evidence of infection and may be continuously cloudy. During the intervals in which the infection is at a low ebb or quiescent, examination of the urinary tract may disclose very little abnormal; and frequently nothing which could explain the persistence of an infection. When exacerbations occur, definite lesions are found; but with the disappearance of the lesions, the infection does not disappear from the urine.

DIAGNOSIS

The fixing of the responsibility on the seminal vesicles as the source of the continued or recurrent infection is not always easy. In cases in which epididymitis occurs, and especially where there is recurrent epididymitis, the diagnosis of an active infection in the vesicles becomes reasonably certain. In many cases the presence of a vesiculitis may be readily determined by palpation; but it is surprising in what a large percentage active foci are present in one or other vesicle and still careful palpation may reveal very few changes. The diagnosis of vesiculitis in many cases depends entirely on changes which can be detected by palpation, and consequently is very inaccurate. When infection is already present in the posterior urethra, the finding of infection in the expressed seminal vesicle secretion is utterly valueless because it is impossible in such cases to obtain the seminal vesicle secretion uncontaminated. Neither are we always justified in considering that active infection may be present in the seminal vesicles simply because of changes which are detected by palpation. An old inflammatory process may have been present long before, and the induration the result of this process, which has entirely subsided.

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[*] Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

In some cases the determination of the presence of infection in the vesicles must be arrived at by a process of elimination. The occurrence of a persistent bacteriuria requires some focus continually feeding infection into some point of the urinary tract where there is no obstruction to urination and no residual urine is present. It is well known from repeated experiments that if organisms are injected into a normal bladder, in a comparatively short time they will entirely disappear from the urine. We know again that if the kidney is infected and that secondarily to this there is present a simple cystitis, the removal of the renal infection will be shortly followed by disappearance of the vesicle infection.

Six cases of the type described above have been under observation for periods varying from a few months to many years. The kidney as a source of infection was eliminated in each case. The patients had been treated at varying times by prostatic massage, instillations, irrigations, stripping of the seminal vesicles, etc., but in none of the cases was it possible to eradicate entirely the infection, and they presented themselves at different periods with exacerbations. In two of the cases the infection took the form of a persistent bacteriuria, one case being due to a colon bacillus and the other to a staphylococcus. Of the remaining four cases, one was a staphylococcus infection and the other three were due to colon bacilli. In the latter four cases pus and organisms could always be found in the urine, the amounts varying at different periods.

TREATMENT

In the belief that the seminal vesicles were probably responsible for these stubborn and resistant infections, it was determined to do a vesiculotomy in each case. In two cases a recurrent epididymitis pointed strongly toward the seminal vesicles as the most probable cause. In three cases there were definite changes in the seminal vesicles which could be detected on palpation. In three of the cases no changes could be detected, and they were apparently normal on palpation. The results of the vesiculotomy in each case were immediate and most gratifying. The histories of a few of these cases will illustrate:

REPORT OF CASES

Case 1.—G., aged 25, seen about May, 1913, complained of frequency and some burning on urination which had been present for over a year. Examination of the urine showed pus and staphylococci. The seminal vesicles presented no changes on palpation, but there was present a mild prostatitis. Catheterization of the ureters showed the urine from each kidney to be negative for infection, while the posterior urethra and trigon presented a somewhat red and granular appearance. The patient was treated with irrigations, instillations and prostatic massage for several months with very little improvement in the urinary condition, although the symptoms practically entirely disappeared. A few months later he developed an epididymitis on the right side, and some time later an epididymitis on the left side. Later on the urinary symptoms returned again and it was finally decided to do a vesiculotomy. The perineal exposure recommended by Young was employed, and the vesicles thoroughly brought into view and opened by several incisions, the ampulla of the vas being drained as well as the vesicles. The patient remained in the hospital two weeks, and at the end of this time, although no local treatment was employed, the urine was entirely free of infection. The patient has been under observation almost a period of two years since the operation, and there has been no recurrence of his trouble.

Case 2.—M., aged 45, seen in 1907 with a history of having had urinary irritability with attacks of frequency and cloudy urine for over six years, on examination was found to have a staphylococcus infection with considerable pus. There was no renal infection, and the bladder was practically normal. The patient was seen at intervals for eight years, and during that time received a great variety of treatments, including autogenous vaccines. The seminal vesicles in this case were considerably thickened with some perivesicular induration. In December, 1915, the patient consented to a vesiculotomy. The seminal vesicles were found to be quite thick walled and fibrous, the right seminal vesicle being particularly pathologic. Because of the marked thickening in the vesicles, the posterior wall of each vesicle was excised so as to give more perfect drainage, and the ampulla of the vas was thoroughly opened on each side. A cigaret drain was introduced on each side, being left in position for four days. The convalescence was uninterrupted, and examination of the urine two weeks later, when the patient left the hospital, showed the complete absence of infection. He has been seen at intervals during the past six months, and the urine has remained entirely sterile. It is interesting to note that for a few months following the operation there was some diminution in sexual power but recently this has returned to normal.

SUMMARY

In view of the results obtained in this small series of cases, it seems probable that many at least of these recurrent and persistent infections of the posterior urethra are secondary to infection of the seminal vesicles. In some cases in which the vesicles show very few changes on palpation, it may be possible by injection of the vas with argyrol or protargol to eliminate the infection of the vesicles. Where, however, there are any marked inflammatory changes in the walls of the vesicles, it does not seem reasonable to suppose that anything short of vesiculotomy or even partial vesiculotomy will accomplish the desired results. Where the vesicles show marked inflammatory changes, it is impossible by a single incision to secure thorough drainage, and in these cases it has been found advisable to remove the posterior wall of the seminal vesicles so as to drain the different pockets thoroughly. Furthermore, the ampulla of the vas should be opened in each case; otherwise a contributing focus may be overlooked. In order to secure the proper drainage, a thorough exposure of the vesicles is important. The urethra should not be opened, and after stripping back the levators and fascia from the prostate, the seminal vesicles present themselves as a rule quite readily in the operative field. They are furthermore brought into more accessibility by means of the Young tractor, which is similar to the prostatic tractor but is introduced through the meatus. This serves to push the seminal vesicles well into the field so that they can be readily attacked.

CONCLUSIONS

The seminal vesicles are much more frequently the cause of persistent bacillary and coccal infections of the urine than is generally supposed. These infections do not respond readily to local measures, and stripping of the seminal vesicles has not proved of much value in many of our cases. After local measures have failed to eradicate the infection, vesiculotomy is indicated. The vesicles in each instance should be thoroughly opened, the ampulla and the vas as well as the body of the seminal vesicles being thoroughly drained. In none of our cases of simple infection has a troublesome fistula resulted.

REPORT OF FIFTY-TWO CASES OF SEMINAL VESICULITIS *

A. C. STOKES, B.Sc., M.D.
OMAHA

From Jan. 1, 1907, to Jan. 1, 1916, my clinical records show that we have handled, in our office, sixty-seven private cases in which a diagnosis of seminal vesiculitis has been made, most of which were complicated by prostatitis. We have subsequent reports on fifty-two. Of these sixty-seven cases, eight operations were performed for diseases of the vesicles, a rather large percentage as compared with other records. The following clinical symptoms, some of which were present in all cases, and all of which symptoms were present in some of the cases, are reviewed:

Temperature and symptoms of sepsis with blood changes, twelve times.
Pain in the end of penis, thirty-eight cases.
Heavy feeling in the perineum, thirty-six cases.
Burning after urination, nineteen cases.
Pain in the back, fourteen cases.
Pain and heavy, sore feeling in the groin, thirty-two cases.
Pain on ejaculation at some time in the history of the case, twenty-four cases.
Pain on defecation, twenty cases.
Constipation, ten cases.
Intermittent discharge, thirty-nine cases.
Frequent urination at night, thirty-four cases.
Frequent urination in the day time, twelve cases.
Sexual aberration of one kind or another, twenty-six cases.
Complaint of passage of semen or some thick fluid at close of bowel movement, ten cases. (This fact I was not able to demonstrate in any case.)
Complaint of passage of semen following urination, eight cases.
Epididymitis, fifteen cases.

In five of the foregoing cases, the question of etiology was doubtful. In all of the others, it was definitely laid at the door of gonorrhea. There is no record in my histories of any cases having exhibited the symptoms spoken of by some of the writers as a colic simulating the passage of a kidney stone. No cases of metastatic infections are included.

These symptoms fall into three classes: general, genital and urinary.

General Symptoms:

Temperature and blood changes, twelve times.
Pain in different regions, 154 times.
Malaise and headache practically in every case.
Constipation, ten times.
Heavy feeling in the perineum, thirty-six times.

Genital Symptoms:

Increased sexual desire, twelve times.
Decreased sexual desire, ten times.
Excessive and uncontrolled sexual passion, four times.
Impotence, three times, sterility, five times.
Spermatorrhea (*a*) following bowel movement, sixteen times; (*b*) following urination, eight times.
Pus discharge, thirty-nine times.

Urinary Symptoms:

Frequent urination by day, twelve times; by night, thirty-four times.
Painful urination and pain in the end of the penis, fifty-seven times.

After washing out the urethra by a fluid passed into the bladder under a hydrostatic pressure and passed out again, thus washing out the urethra, the vesicles were massaged as distinctly as possible from the prostate. A Valentine endoscope was introduced into the bulb of the urethra before massage, and the fluid flowing out was collected and examined. The following are the results:

Unstained Microscopic Examination:

Sago bodies, thirty-eight times.
Sugar bodies, eight times.
Skins, ten times.

Stained Specimens Examined by the Microscope:

Staphylococcus, thirty-six times.
Diplococcus, gram negative, eighteen times.
Diplococcus, gram positive, twelve times.
Colon bacillus, six times.
Pus in every case.
Blood in ten cases.
Lecithin globules in every case.

In forty-two cases the records show inability to determine whether this pus came from the prostate or the seminal vesicles. In most cases I was sure that it came from both, and in only one case was I positive that the pus came alone from the seminal vesicles, because the prostate had been removed. On endoscopic examination the verumontanum was shown to be swollen and red and bleeding easily in practically all cases. In forty-nine cases the colliculus was inflamed. The infection of the verumontanum and the posterior urethra was due to the discharge of pus from the ejaculatory duct or from the ampule of the vas deferens or from the seminal vesicles.

The study of the urethra by sound and the dilation frequently showed narrowing in the bulbous urethra. In eighteen cases the urethra was exceedingly sensitive to the passage of the sound, and bled at the slightest touch. In twenty-five cases, on examination of the vesicles by the finger through the rectum, we have noted the following:

Vesicular enlargement, sensitive and thickened on the right side, twenty-nine times.
Vesicular enlargement on the left side, twenty-three times.

This is contradictory to the reports of many of the writers that the infection of the vesicle is much more common on the left side than on the right.

The prostate showed signs of enlargement in forty-six cases, indurated nodules in thirty cases, and it was soft and boggy in the remainder.

Vasotomy was performed eleven times, and the Hagner operation for epididymitis eight times. Eight patients were operated on for vesicular infections. The results of these eight cases form the most interesting portion of this paper:

REPORTS OF CASES

CASE 1.—Mr. A., from South Dakota, family presented negative and personal history, except that about one and one half years ago he had contracted gonorrhea. After three or four months the continuous discharge ceased. The patient had, however, intermittent discharge. He was referred to me because he was suffering from sexual aberrations. He believed that his sexual manhood was entirely destroyed forever. He was confident that any one meeting him on the street who looked in his eyes could determine that he was impotent. He had illusions of various kinds. Physically, he complained of the intermittent recurrence of the discharge, which was not very profuse but which occasionally started up and continued for three or four days. He had to rise once or twice at night. At times he had burning on urination, and the slightest effort in the way of work, drink or overeating would produce pains in the perineum, pain and soreness in the urethra, and a discharge. This was one of our early cases, and the record shows that we made a diagnosis of prostatitis and thought that it would be wise in such a case to open the perineum and drain the prostate or perhaps remove part of it. On arriving at the prostate, we were unable to determine anything serious about it, and in dissecting about the prostate and endeavoring to bring it better into view, discovered that the left vesicle was large and indurated. We opened this and drained out considerable pus; after the usual treatment the patient made an operative recovery. For a time he was perfectly well. In the course of a year and a half he returned again. This discharge was still in existence; his sexual symptoms were no better; his general state of health was exceedingly bad, and his mental condition worse. We then put him on the ordinary medical treatment, namely, prostatic massages, dilation of the urethra and the use of silver. This he continued for about six months, after which he left, much improved. About a year ago we heard from him again to the effect that he was better, was married and settled down, and his sexual hallucinations had disappeared. This, no doubt, was a useless operation. There are no facts connected with the results of the case that would tend to make me believe that this operation had any beneficial effect whatever. Local treatment and possible vasostomy should have been given a more thorough trial.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Case 2.—Mr. A., referred from Omaha, by Dr. Ewing Brown, had negative personal and family history. There was history of pain in the perineum and on defecation, occasional rise of temperature, and frequent urination. The left vesicle was sore, painful, large and distended. We opened the vesicle in the Swedish Mission Hospital, Oct. 22, 1910. A large amount of pus came from the vesicles. Tube drainage was inserted. After a stormy convalescence, accompanied by epididymitis, the patient was finally able to leave the hospital. The urinary fistula through the perineum remained for two months, after which it closed. He made a symptomatic recovery but claimed to be impotent and his discharge continued. Whether or not he was sterile, I have not had the opportunity to determine.

Case 3.—Mr. B., referred from Omaha, had gonorrhea about three years before, and complained of intermittent discharge, especially the morning drop. He had frequent urination, and occasional retention. On physical examination his prostate seemed enlarged on the right side. The seminal vesicle was indurated, enlarged and sore. The seminal vesicle on this side was drained as before. It was a chronic condition, and a question whether any pus was found or not; but the vesicle was slit through its entire length. The patient made a rapid operative recovery with no trouble whatever, and three years ago he was perfectly well.

Case 4.—R., referred by Dr. Owen of Omaha, had a definite seminal vesiculitis of a chronic history. We drained the right vesicle. He had a stormy convalescence accompanied by epididymitis, and he was a constant attendant at my office for about two years after the operation. The subsequent symptoms after the operation were intermittent discharge, pain in the right groin, the side on which the vesicle was drained, pain in the back, heavy feeling of the perineum, headache and constipation. By continued prostatic massage, irrigations, the use of dilation of the urethra and occasional cauterizations, we were able to remove the trouble entirely. This case I regard as one in which the operation did no harm and probably did no good.

Case 5.—Mr. C., from South Dakota, came to us after he had treated himself for an acute urethritis for some time. After careful physical and chemical examination, we determined that he had a large pus sac in the way of a right vesicle. He decided to have the vesicle drained. This we did. He recovered without any event, but in the course of two or three weeks after the operation, the discharge returned, his prostatic infection continued, and the last I knew of him he went to Dr. Belfield, who undoubtedly did a vasostomy on him and cured him.

Case 6.—Mr. P., of Belleville, Kan., referred by Dr. Decker, Sept. 30, 1912, was a sexual neurasthenic. On careful examination we thought we were able to determine a large and tender vesicle. He had frequent urination, and the bladder was more or less congested over the trigon, as seen by the cystoscope. He had intermittent discharge from gonorrhea about five years ago. In this case we determined to attempt a removal of the vesicle, which we did. He recovered from the operation very nicely, his discharge stopped, his sexual neurasthenia remained, and he thought he was impotent, but his semen showed live spermatozoa. He consulted Dr. Braasch, Rochester, Minn., and on his return he told me that Dr. Braasch thought he was perfectly well.

Case 7.—Mr. R., referred from Omaha, Jewish, had chronic gonorrhea for five years, with recurrent attacks at intervals of about every two years. He came to us for recurrent epididymitis. Because of pus in the prostate and seminal fluid, indurated and plainly palpable vesicle on the left side, we advised a vesicle removal, which was done, March 15, 1911, at Swedish Mission Hospital. The patient made an ideal recovery, and after about four months had no more discharge. Epididymitis did not return, and the patient had no sexual difficulties.

Case 8.—Mr. G., Jewish, 1912, had recurrent acute cystitis, with frequent urination. The bladder was normal except on the right side over the trigon, where it was edematous, congested and red. There was pus in the vesicular and prostatic contents, and an indurated and sore vesicle on the right side. On this evidence a diagnosis of seminal vesiculitis was made, and a part of the right vesical was removed. The patient had had only palliative treatment before this. He had never had a vasostomy. This man is a resident of Omaha and was an employee in the Jewish Hospital in this city. I see him every few days, and to date he seems to be perfectly recovered from his symptoms.

COMMENT

A study of these cases would place them under three clinical heads, namely, acute, subacute and chronic infections of the seminal vesicles.

The symptoms of the acute form are those of acute general sepsis characterized by rise of temperature, pain, leukocytosis, malaise, constipation, headache and the ordinary train of symptoms following such infection. Locally, we may have exceeding tenderness on pressure over the vesicle, pain on defecation, pain on ejaculation, increased and often uncontrollable sexual desire, and pain on urination accompanied with tenesmus. I regard the treatment of this class of cases as best executed by the vasostomy of Belfield. If this does not succeed, removal of the vesicle may be done.

The subacute form of seminal vesiculitis is characterized by the recurrent appearance of the symptoms of acute vesiculitis. The manifestation of recurrent incurable discharge appears. Chronic pains in the back, pains in the groin, Volecker has shown, are frequently due to a localized more or less circumscribed pus infection in the vesicle. Vasostomy cannot reach or be expected to cure this condition.

The chronic form of seminal vesiculitis is chiefly characterized by the appearance of sexual neurasthenias and aberration. Any or all of the preceding symptoms may be present, but chiefly in this case appear hallucinations of impotence and sexual weakness, which have demoralizing effects on the individual. Pathologically, Volecker divides this class of cases into two divisions: first, those in which the mucosa alone is entirely destroyed, and second, those in which not only the mucosa is destroyed but also the inflammation has extended through the fibrous wall of the vesicle and has produced an extensive perivesiculitis. Frequently the second class is a result of the first. In such cases it is impossible to conceive that the treatment by vasostomy can avail in the reconstruction of a destroyed organ. It is this class of cases in which vesiculectomy is indicated. From my experience, together with the study of the work of Tuller, Belfield, Squire, Schmidt, Volecker and others, I am convinced that if vasostomy fails, the removal of the seminal vesicle has a far wider and more beneficial application than the drainage of the vesicle alone. We can conceive only from a pathologic standpoint that drainage of the vesicle would be effective in those cases in which there was a pronounced empyema of the seminal vesicle. Drainage of an old hard vesicle with its mucosa infiltrated with round cells would be of very little benefit.

The technic which we have employed has been the ordinary technic as used by Young and Schmidt, and by a careful pulling of the prostate, we have been always able to arrive at the seminal vesicle just as it leaves the prostate gland. By a careful hemostasis and sharp dissection we have been able to isolate the vesicle at this point and to place a ligature between the vas and the vesicle by the use of a ligature carrier. By tying on either side and cutting between the sutures, we have been able in our cases to dissect out the vesicle, beginning from below and proceeding upward, contrary to the ordinarily recommended technic. If, however, a clamp is placed on the vesicle and gently retracted, and the tough fibrous capsule around the vesicle is cut on its lower border, the vesicle can be easily peeled out.

CONCLUSIONS

1. Seminal vesiculotomy is rarely indicated, and should not be done except in those cases in which there is an empyemic vesicle with signs of general sepsis and no tissue destruction.
2. On anatomic and pathologic grounds the operation of drainage of the vesicle cannot remove the disease in chronic cases, and the pathologic condition will return when the wound has healed.
3. In all chronic infected vesicles with a series of chronic symptoms, if after proper medical and mechanical treatment and vasostomy it becomes necessary to perform such a major operation as that of draining the vesicle, the removal of all the superprostatic vesicle adds such a small degree of operative risk that it is justified in practically every case in which such extreme methods are necessary.
4. Seminal vesiculitis as a simple clinical entity is exceedingly rare, and the diagnosis is difficult and rarely made, because sufficient attention has not been directed to this infection.
5. Treatment of the seminal vesicle alone has imperfect and incomplete results. The other urethra adnexa which are adjacent must be treated at the same time.
6. The prostate, the trigon, the vera and the utricle are usually either primarily or secondarily infected in cases of vesiculitis.

SEMINAL VESICLE INFECTIONS AS THE CAUSE OF PERSISTENT URETHRAL DISCHARGE

REPORT OF CASES *

ROBERT H. HERBST, M.D.
CHICAGO

This report is limited to the discussion of cases of acute urethritis in which the persistence of the discharge was thought due to infection of the seminal vesicles. In over 75 per cent. of cases in which the gonococcus invades the male urethra, it travels back of the cut-off muscle and into the posterior urethra, and in most, if not all of these, the ejaculatory ducts and subsequently the seminal vesicles become involved. When this condition prevails, the disease must be considered a genital tract as well as a urethral infection.

If the assumption is correct that most posterior urethral infections are complicated by involvement of the seminal vesicles, do we do our patients justice when we limit our treatment to urethral medication? It is only of late that the treatment of the seminal vesicles has been considered worthy of attention, and as a matter of fact the handling of this phase of the infection is the most serious problem that confronts us.

Let us consider what the possibilities are in a given case in which the treatment of the vesicles is ignored until a subacute or chronic condition ensues.

1. The vesicles may heal out spontaneously.
2. The acute process may gradually subside, with a resulting chronic vesiculitis.
3. Acute recurrent infections of the epididymis are possible at any time as long as infection in the vesicles persists.
4. Systemic manifestations and joint involvements are always possibilities during the continuance of such infections.
5. The acute process may not subside and may be the cause of the persistence of the urethral discharge.

Inasmuch as spontaneous healing of infected vesicles is a rarity, and local treatment, such as stripping, is curative in only a small percentage of cases, the question arises. When is surgical intervention indicated? If we consider the number of complications and sequelae that may develop at any time during a vesicle infection, it would seem logical to direct treatment to these organs when once we are convinced that they are involved.

Contrary to this idea, in the past, vesicle surgery has been limited principally to chronic cases not accompanied by a profuse urethral discharge. In this report I wish to refer to a class of cases in which, regardless of urethral medication, the discharge has persisted over a long period of time. It is my belief that in many of these the vesicle infection is the direct cause of the persistence of the urethral discharge.

My attention was first drawn to this theory by a patient who came under my observation complaining of a profuse discharge from the urethra of six months' duration, complicated by frequent and painful blood-stained emissions, which had not occurred prior to the urethral infection. These emissions led me to make

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a careful examination of the vesicles, which proved them to be greatly enlarged and tender. In order to relieve this condition, I made a bilateral vasotomy and injected both vesicles with collargol. To my surprise, the profuse urethral discharge practically disappeared within forty-eight hours. Since this time I have made it a point to scrutinize carefully the vesicles in all cases in which the discharge from the urethra does not respond to the usual treatment. Since resorting to this practice, I am convinced that the seminal vesicles have not received the recognition they deserve in the acute stage of gonorrhea of the male urethra. It is obvious that the diagnosis is in many instances difficult; however, when the urethra discharges persistently, it is our duty to make a careful rectal examination of the vesicles. This examination will often reveal large, soft, tender vesicles, differing from the chronic cases, in which the vesicles are usually hard.

Brief cessation of the urethral discharge, with repeated recurrences, should also attract our attention to the vesicles.

Few of these cases exhibit symptoms pointing to these organs; however, we find some patients who complain of a sensation of fulness in the rectum, as well as those who are troubled with frequent and painful emissions, which are sometimes blood-stained.

Given a case of protracted urethral discharge, in which, on palpation, the vesicles are found enlarged and tender, would it not seem far better immediately to attempt to eradicate the infection from the vesicle rather than to wait for the condition to become chronic, with the accompanying danger of the many complications and sequelae which may develop in the interim?

This report does not include any cases of chronic seminal vesiculitis, but is limited to those in which vasotomy was performed for the relief of profuse and persistent urethral discharge, which was believed attributable to infected vesicles.

REPORT OF CASES

Case 1.—M. P., aged 23, complained of a profuse purulent discharge from the urethra, of six months' duration, and of frequent painful seminal emissions, which developed during the fourth week of his infection.

Examination revealed a purulent urethral discharge which contained numerous gonococci. Rectal examination revealed both vesicles enlarged and soft. The prostate was slightly enlarged. The patient had been given various mild silver salt injections, since the start of his trouble, without any diminution of the urethral discharge. Sedatives failed to control the frequent and painful emissions. For the relief of the latter condition, a bilateral vasotomy was performed and both vesicles injected with 8 c.c. of a 5 per cent. collargol solution. To my surprise, the urethral discharge was hardly noticeable after forty-eight hours, and disappeared entirely within a week.

Case 2.—J. F., aged 24, single, contracted gonorrhea two years before. He states that discharge from the urethra returns promptly (within forty-eight hours) after every sexual exposure. The present discharge has continued for the last two months. Palpation of vesicles showed them to be enlarged and rather harder than normal. Pus from the urethra contained many gonococci.

Dec. 16, 1915, bilateral vasotomy was performed, followed by injection of both vesicles with 6 c.c. of a 3 per cent. collargol solution. The discharge disappeared within ten days; it has not recurred, although the patient has had several sexual exposures since the operation.

Case 3.—F. H. contracted gonorrhea three years ago. He has had many acute exacerbations since. The present profuse discharge was of nine weeks' duration. The discharge developed twenty-four hours after exposure and was evidently an auto-infection, due to the passage of contents of infected vesicles into the urethra.

Examination showed both vesicles enlarged and tender. Microscopic examination of pus from the urethra showed gonococci.

Bilateral vasotomy and injection of vesicles with collargol was followed by diminution of the discharge and gradual disappearance in eleven days.

During the entire three years the treatment consisted of urethral injections, but the patient was never free from discharge and pus in the urine.

Case 4.—S. C., aged 26, with no past venereal disease, had a urethral discharge which began eight months ago, appearing four days after exposure. The patient developed left epididymitis in the fourth month of infection.

Examination revealed a profuse purulent discharge, which had been uninterrupted since infection started eight months before. Injection of mild silver salts had no effect on the discharge.

The vesicles were both very large and tender, the tenderness being more marked on the left side. Microscopic examination showed many gonococci.

Feb. 4, 1916, a bilateral vasotomy was performed with injection of 12 c.c. of 3 per cent. collargol into each vesicle. The discharge was completely absent on the fifth day after operation. The urine remained cloudy, but cleared up promptly after a few applications of silver nitrate to granulations in the posterior urethra.

Case 5.—W. H., aged 30, complained of a painful swelling in the right side of the scrotum of four days' duration. He stated that he had had a profuse discharge from the urethra for three months. He had been treated with urethral injections since the onset.

Examination revealed the right epididymis and cord greatly swollen and tender, and both vesicles greatly enlarged.

Jan. 15, 1916, a right epididymotomy was performed, followed by bilateral vasotomy and injection of both vesicles with 6 c.c. of 5 per cent. collargol. Pain and swelling in the epididymis subsided promptly. The discharge from the urethra disappeared in eight days.

COMMENT

The five cases reported in detail are taken from a selected series of twenty-one. All cases in the series had the following points in common:

They all had a profuse purulent discharge from the urethra. This discharge had been of long duration—from two to eight months.

They all gave clinical evidence of involvement of the seminal vesicles.

They all had the usual treatment directed to the urethra, without apparent benefit.

In six cases the discharge disappeared within a week; in three cases within two weeks; in four cases within three weeks.

In five cases the discharge continued after operation, and I am satisfied that the urethral glands or the prostatic follicles were more responsible for the discharge than the seminal vesicles.

In three cases after the operation the discharge changed from purulent to serous in character. In two of these, urethroscopic examination revealed granulations in the posterior urethra, and the discharge cleared up promptly after application of 5 per cent. silver nitrate solution. The third patient improved after instillations of silver nitrate solution, but passed from my hands still showing a slight discharge.

Considering the reports of Belfield, Fuller, Squier, Young, Pedersen and many others, who report excellent results from the various operative procedures directed toward chronic infected vesicles, the question again arises: Why not attack these cases when we are convinced that the vesicles are involved, and are responsible for the persistence of the trouble?

32 North State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GERAGHTY, STOKES AND HERBST

Dr. E. O. Smith, Cincinnati: Dr. Geraghty's discussion of the seminal vesicles as a seat of infection is well taken, and all of us are familiar with the frequency with which this condition occurs. He did not mention one of the remote symptoms, which has been overlooked many times, and that is arthritis. We have here a focus of infection that sometimes escapes notice, as is illustrated by a patient sent to me sometime ago for a persistent arthritis, most evident in the lower extremities. It had been going on more or less for two or three years. He had been to health resorts and had had many sorts of treatment. A surgeon put arches in his shoes. This did not relieve him. He was sent to a dentist and had a large amount of expensive bridgework removed, but this did not relieve his arthritis. Some months later he was sent to me for examination of the seminal vesicles and prostate. We found involvement of these structures, and put him on suitable treatment—massage, irrigation, vaccines—and the arthritis cleared up very promptly.

Dr. O. S. Lowsley, New York: The seminal vesicles begin to develop at the fourth intra-uterine month as evaginations from the vasa deferentia. Pauline has shown that the anatomic arrangement consists of one main tubule extending the entire length of the vesicle, with a varying number of small branches laterally. This normal anatomic arrangement, of course, is distorted in diseased conditions.

Dr. V. D. Lespinasse, Chicago: The problem of infection in the seminal vesicle seems to be, first, diagnosis. If we treat the vesicle directly we must be sure that the disease is in the vesicle itself and nowhere else, and the greatest trouble is to diagnose these cases, not to decide what type of treatment is best. In the acute cases vasostomy with irrigation, which washes out the ejaculatory duct and the ampulla of the vas and frees it from the thickened secretions, acts the same as the passage of a ureteral catheter or the simple incision of an abscess, and consequently gives excellent results.

In the chronic cases this procedure does not always produce the results that we should like to have it produce. In such cases bisection or removal should be done. Our results in this work will be poor unless we select our cases carefully and make a localizing diagnosis before we institute any surgical procedure.

Dr. John R. Brown, Tacoma, Wash.: No case ought to be allowed to become chronic. In our own work we have experimented to some extent with rather excessive heat applied to the seminal vesicles. The gonococcus is not resistant to heat. One hundred and five degrees for five minutes will kill a culture in vitro. Some authorities say there are certain strains that will survive 113 degrees for five minutes, but that seems to be the limit. If we then can apply heat directly to the infected spot it seems that it is a very good application. I have devised a rubber bag, which is introduced into the rectum through a tubular speculum. It has rather thin walls, and an inflow and an outflow tube; a thermometer controls the heat, and the heat we apply is 125 to 135 F., which the rectum will bear without very much inflammation for an hour. We can apply the same heat in the urethra by means of a hollow sound. The outside skin of the penis will be raised to 106 F. in five minutes. The urethra will not stand much more than 120 F. The rectum will stand a temperature of 135 F. The results in these cases have been much more than we had hoped for in the beginning, two or three treatments curing acute cases of seminal vesiculitis. In chronic cases it is less spectacular, but even in cases of five years' standing, and in one case of eighteen years' standing, we secured what seems to be a symptomatic cure.

Dr. Louis E. Schmidt, Chicago: I do not believe we should rely entirely on our finger for diagnosis. If we do, we will overlook an enormous percentage of cases. I am under the impression that in a lot of these people who have pain in the suprapubic region, whether or not accompanied by any sexual, urinary, rectal or abdominal symptoms, you can detect a sensitive vesicle with an instrument. If no other instrument is at hand, the handle of a sound should be used, and you will be surprised to discover so many sensitive vesicles if you do this in a systematic manner. Those people in whom you can elicit a terrific pain by pressure on the upper portions of the seminal vesicle I am inclined to believe demand treatment, not necessarily operative, but they should receive the regular routine, plus massage with an instrument, and later vasostomy if necessary. If this routine is gone through several times and if no result is obtained, operative interference can be considered in many of these cases.

As to the presence of blood in the semen that is obtained by massage, fully 75 per cent., if not more—possibly 95 per cent.—of all cases of seminal vesiculitis show blood in the presence of pus. Oftentimes you massage a prostate and get pus and you are in doubt as to whether the pus comes from the vesicle, but if there is blood present it is almost a certainty that the pus comes from the vesicle. You rarely ever can get red blood cells even in microscopic quantities if the inflammation is only located in the prostate. As to operative interference in these cases that have neurasthenic symptoms, the more prominent the symptoms the better it is to omit operative intereference, because these symptoms, in connection with others, will not disappear. It is true that operative interference might improve some of the conditions for which you operate, such as recurrent discharges, but, as a rule, their neurasthenic symptoms will increase. There are a lot of little details as far as the operative interference itself is concerned. I believe you can get along very well without the aid of Young's instrument in pulling down the prostate and seminal vesicles. Furthermore, it is not necessary to use the method that Squier recommended. You can make the exposure of the seminal vesicles and remove them without any such help. The whole secret is that there should be an exposure which will permit of careful interference.

Dr. A. C. Stokes, Omaha: I wanted to bring out the fact that in a pus sac like the seminal vesicle, removal of it is better surgery and better pathology than the drainage of it. We do not drain a gallbladder or an appendix or fallopian tube; we remove them. There is one point I thought some one would bring out; that is, the relation of the seminal vesicles to the peritoneum. A German surgeon some years ago and later Dr. Young have shown that we can reach the seminal vesicles from above. While I have not done that on the living subject, I have done it several times on the cadaver, and believe one can remove them with less trauma to important structures from above than from below.

Dr. Louis E. Schmidt, Chicago: I would like to say a word with regard to impotency as a result of these operations. It shows that the operations of vesiculotomy and vesiculectomy should not be carried out promiscuously. There is no question, from all the reports, that this is the consequence in a certain percentage of cases. I have one to report out of the last ten cases in which I have operated. I am not in a position to state whether it is only temporary or permanent. The impotency has persisted practically nine months, and I know of other instances where the impotency has persisted for a much longer period of time. This word of warning is sufficient: Do not operate too quickly if you consider this one unfortunate result which can occur in any case. In this particular instance the individual's symptoms were chiefly pain. He had been operated on by others in every conceivable way, previous to the draining of the seminal vesicles. In a great many cases where there has been considerable pus and where the vesicles have even been infiltrated, with small abscesses in their walls, the results as regards impotency have been perfectly satisfactory. The pathology in these cases where impotency has followed in my series has been far less than in those cases where impotency did not result.

A Complete Library.—Every library should try to be complete on something, if it were only the history of pinheads.—O. W. Holmes, The Poet at the Breakfast Table.

CERTAIN ASPECTS OF NATURAL AND ACQUIRED RESISTANCE TO TUBERCULOSIS

AND THEIR BEARING ON PREVENTIVE MEASURES *

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(*Continued from page 674*)

The significance of the histologic elements in tuberculous foci may perhaps be elucidated more completely in the future by a comparative study of primary, secondary and later foci. Thus the existence of a chain of tuberculous lymph nodes signifies, at least in certain regions of the body, that one has been infected from the other. If the first or primary focus has had any appreciable effect on the relative immunity of the host, the reaction in the second node should differ somewhat from that of the first. The same may be said of a third focus. A more frequent manifestation of secondary foci occurs in what is known as generalized or miliary tuberculosis. It is obvious that the tissue reaction in miliary disease should be different from that of the primary focus, since the body must have undergone a certain degree of immunization, however slight. While the character of the tissue reaction in secondary foci may remain qualitatively the same, there may be quantitative changes in the direction of an accelerated reaction.

The behavior of different species of animals differs markedly with reference to the progress of tuberculosis toward secondary and tertiary infection. In highly susceptible animals, as the guinea-pig, the prompt invasion of the blood stream and the formation of foci in spleen, lungs, liver and other organs is the rule. It proceeds rapidly after infection. In other species, generalized infection does not occur regularly. The formation of large numbers of miliary and submiliary tubercles, in cattle, for example, is rarely seen, and the entry of tubercle bacilli into the blood is indicated by a few often relatively large foci. This condition is best explained by assuming that the bacilli entering the blood are suppressed before tubercles are actually formed, and that the isolated foci of hematogenic origin are the resultant of local, specially favoring conditions. On the other hand, in swine which are victims of the bovine bacillus, miliary tuberculosis is far more frequent. Bearing on this point, the occasional single giant cell in otherwise normal tissue of tuberculous cattle may be regarded as a tubercle in its simplest as well as most highly immune type.

GENERALIZED TUBERCULOSIS

We may thus state that generalized or miliary tuberculosis may occur in two extreme types of cases: (*a*) in those highly susceptible it occurs regularly, (*b*) in those relatively immune, as in man, it occurs infrequently, and may be the result of some intercurrent disease or accident which caused a dissemination from a primary focus. Between these extremes, intermediate types undoubtedly occur. The problem is to find out the differences in the character of the secondary tubercles of the two classes as defined ove. The tubercles of the first group should show a ncy toward enlargement and progression into the ment; those of the second group, a prompt tendency toward those retrogressive changes, such as sclerosis, caseation, calcification, and capsule formation, which indicate host resistance.

TYPES OF TUBERCLE

A series of types of tubercle depending for their make-up on the degree of host immunity may be formulated as follows, beginning with the highest resistance:

1. The giant cell alone.
2. The giant cell plus a small envelope of epithelioid cells, the whole remaining pervious, not undergoing necrotic changes, and becoming sclerotic.
3. A focus larger than that just mentioned and undergoing prompt caseation and calcification.
4. A group of tubercles due to temporarily unhindered multiplication of bacilli and forming a relatively large focus undergoing the usual retrogressive changes.
5. Very rapid and copious multiplication of tubercle bacilli within a given focus, or tubercle leading to necrosis and subsequent dissemination of bacilli.

These, among other types, serve to indicate the variable factors at work, be they humoral or cellular, or the two operating together. The giant cell alone, according to this scheme, stands for the highest type of resistance, as indicated by histologic methods. The suppression or destruction of individual tubercle bacilli without any recognizable reaction of any kind on the part of cellular elements is, of course, possible, but such a process is not likely to be demonstrated by current histologic methods.

The outstanding fact of interest in the relation between the tissues of the host and tubercle bacilli is the survival of a certain number of the latter in the products of degeneration and their discharge outward. How many bacilli are produced, how many destroyed in tuberculous lesions cannot be even guessed at. The data obtained by staining methods indicate that in relatively susceptible hosts, such as the rabbit, toward bovine tubercle bacilli, the foci contain very large numbers of bacilli. In relatively resistant hosts, such as the rabbit, toward human bacilli, the foci contain few bacilli. It is probable that the tissues in general operate toward suppressing multiplication rather than in destroying bacilli which have multiplied, although, as stated above, active destruction is not questioned here.

LATENCY OF BACILLI

Around the fact of the survival of tubercle bacilli — a necessary prerequisite to their continued existence as a species — there have arisen special questions concerning the latency and persistence of tubercle bacilli. Latency may be defined as the presence of tubercle bacilli in supposedly normal tissues of still normal individuals, and persistence as their continued presence in manifestly tuberculous tissue. For example, bacilli have been found in apparently normal lymph nodes of children by a number of observers, as determined by inoculation of such tissues into animals. Such nodes, however, may contain microscopic foci, as pointed out by Joest, L. Rabinovitch and others. Why such foci should have remained microscopic belongs to the unexplained phenomenon of individual resistance, unless we grant that the individuals are practically immune to the particular bacilli encountered. As stated above, the persistence of bacilli in caseous and even calcified and chalky foci has been noted by observers both in the human and the bovine

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lon Lecture, delivered before the Society for Biological ty of Pittsburgh, May 17, 1916.
nd section of Dr. Smith's article. The first part JOURNAL, March 3, 1917, p. 669.

diseases. Weber and others, from an intensive study of the distribution of human bacilli after intravenous injection in calves, concluded that virulence was a very important factor in persistence. When using tauruman, a fairly active vaccine, consisting of a culture of human tubercle bacilli, they found bacilli still present in all tissues examined after the first month. Thereafter the bacilli gradually disappeared, remaining longest in heart and lungs. After six months they were no longer detected. In the subcutaneous tissue, bacilli survived for over eleven months. The bacilli of a weaker vaccine disappeared more quickly. Calmette states that cattle treated or vaccinated with bovine bacilli grown on a glycerin-bile medium resisted a fatal dose and remained well. Such cattle, however, harbored virulent bacilli in lymph nodes, chiefly the bronchial, for as long as eighteen months. Some, he thinks, are excreted by way of the hepatico-intestinal route.

The persistence of tubercle bacilli may be due to the assumption of a more resistant morphologic state. This state may be merely temporary and representing some functional modification induced by the heightened resistance of the host. That a spore state exists, such as was accepted by Koch in his earliest writings, has not been generally credited. The gram-staining, granular type of Much may represent either a more resistant or a degenerative phase.

QUESTIONS TO BE SOLVED

The foregoing review of the intimate relation between tubercle bacilli and the tissues of the host clearly indicates that our knowledge on this subject is still unformed. We do not know what it is which in man and cattle leads now to the cessation of the disease, now to progression. We do not know what is lacking in such species as the guinea-pig, rabbit and monkey to prevent the steady, irresistible encroachment of the bacilli, or what it is in such species as rats and mice which suppresses the infection in an early stage or at the start.

In particular, the relative share of cellular and humoral factors, of phagocytosis and of antibodies, which are involved in all types of infection and parasitism, remains to be worked out. Thus far the weight of opinion and evidence seems to favor the cellular elements. The humoral elements, it should be borne in mind, represent contributions from various distant groups of cells poured into the blood stream. Such contributions, it appears, can be stimulated only by products of tubercle bacilli, either metabolic or disintegrative, which have entered the blood or lymph stream. They are therefore called forth after infection. The cellular elements entering the tubercle must represent the primary factors in engaging the bacilli. In my vaccination experiments, referred to above, the immune humoral factor was evident in the treated animals in that the infection, after flooding the blood, failed to get a foothold in the capillaries of the lungs, where myriads of tubercles developed in the controls.

There may be, however, humoral elements of a general nonspecific character always present which may have much to do with deciding the course of the infection. Of these we know nothing in particular. Nor do we know anything definite of the primary resistance or vulnerability of the endothelial cells in different species which appear, for instance, in the endothelial elements of the pigeon. In this species, the pneumococcus, as shown recently by Kyes, is taken up promptly by such cells and made to disappear. On the other hand, the same cells take up mouse septicemia bacilli, but the pigeon invariably succumbs, and at the time of death the cells are loaded with bacilli.

SEARCH FOR METHODS OF INCREASING RESISTANCE

But there are different ways of approaching the same problem. Practical medicine does not wait for science to elaborate methods available in combating disease, but pushes ahead, often without any reliable guide to search for cures, and now and then succeeds in discovering important principles which serve, not only as weapons for man, but also as points of departure for important theoretical researches. So it has been in tuberculosis. The attempts to discover means for increasing the resistance of individuals toward tuberculosis and for inducing a healing of existing lesions have far outrun our knowledge of the phenomena of infection and immunity. In attempting to circumscribe and suppress tuberculosis in the human race, there are two chief means at hand. One is to suppress the infection in transit from individual to individual; in other words, to break the cycle in its fourth phase. The other is to increase the resistance of individuals toward a more or less ubiquitous infection or, expressed differently, to treat the host in such a way that the second phase of the cycle, the multiplication of bacilli within the body, may be suppressed. The two methods tend to the same result and are cooperative to a large degree, but not wholly so, as we shall see farther on. There is a third possible method, that of destroying or rendering inert tubercle bacilli within the body by the direct action of some substance administered. This method would likewise interfere with multiplication and would have the same end effect as the second method. To increase resistance, the well known methods of vaccination with living or dead bacilli or of various preparations of the latter are the first to be considered. Here we must turn to animal experimentation to give us certain data.

The immunization of cattle against bovine tuberculosis by the use of a vaccine consisting of living human bacilli was first tried by von Behring, and is known as bovovaccination. The basis for this work was the relative harmlessness of the human type of tubercle bacilli for cattle, even after intravenous injection. Now and then cultures were encountered which in the doses ordinarily employed were fatal to calves after intravenous injection. In general, the animals stood such injections well, and when tested later with a dose of bovine bacilli, showed a considerable degree of resistance. The mode of testing was, as a rule, quite severe, and no absolute resistance to such test could be expected. The outcome of these many experiments was that while resistance was increased by vaccination, it declined and disappeared after a time. This disappearance has been generally assumed to be coincident with the final disappearance of the living bacilli of the vaccine from the host tissues. The test of such vaccinal immunity has not been thoroughly made as yet toward the natural disease, owing to the great cost. Usually such tests, consisting of exposure in infected herds, were associated with sanitary precautions and other preventive measures which weakened the value of the immunity test.

In experiments of this kind undertaken by myself, the resistance, as compared with controls, was well marked. At the end of about six months after the final test with bovine bacilli, the animals were killed and certain lesions found and studied. These indicated that the bovine infection introduced by the test inoculation was at first retarded or latent and later progressive. The immunized animals, furthermore, showed changes in the anatomic character of the disease as well as changes in the histologic make-up of the lesions which brought the inoculation disease nearer to the pulmonary disease of human beings known as phthisis. Similar experiments made by myself and by Paul A. Lewis with tubercle bacilli killed by heat showed that dead bacilli produced no increased resistance. The use of living cultures of low virulence is thus indicated if any distinct increase of resistance is desired. How far it might be possible to replace the intravenous by the subcutaneous injection of the vaccine cannot be definitely stated. Heymans, who applied the latter method extensively, has not to my knowledge made any experimental tests of the acquired resistance by the intravenous injection of bovine cultures.

The von Behring method has brought to light a serious practical objection to the use of living cultures. When they are implanted in the body, the time of their final disappearance cannot be predicted. As stated above, they persist for many months in some organ or tissue. In the presence of animal parasites, injuries, and inflammatory conditions due to other infections, they may multiply and produce definite lesions. Administered to calves at an early age, they may persist in rare instances and reappear years after in joint affections and be shed in the milk. The joint infections are most likely preceded by traumatism; the udder infections by mastitis. These results do not encourage the use of living cultures on the human subject and, in view of the failure thus far of dead cultures to increase resistance, we must regard the specific immunization against tuberculosis as an open problem.

Considerable interest has been aroused by certain experiments of Römer on guinea-pigs, which showed that actively tuberculous animals resisted the multiplication of a second small dose of tubercle bacilli, while those which had been treated with virulent living and with dead bacilli, as well as the controls, became tuberculous. These results were later confirmed by Kraus on monkeys and by von Behring and by Calmette on tuberculous cattle. The chief interest in these experiments rests on the fact that a disease which is progressive within the body may ward off fresh infection from without. That the tissues of the tuberculous guinea-pig may produce lysis of tubercle bacilli was pointed out by Kraus in 1912. A more detailed and thorough test of this phenomenon was published by Manwaring and Bronfenbrenner in 1913. In preliminary tests they found that after the injection of certain strains of tubercle bacilli into the peritoneal cavity of normal guinea-pigs, the bacilli underwent rapid changes leading to involution forms and loss of staining capacity. Eliminating as far as possible this error by choosing their strains carefully, they found that tubercle bacilli could be recovered quantitatively from the peritoneal cavity of normal guinea-pigs, but only about 65 per cent. from the peritoneal cavity of tuberculous guinea-pigs. The disappearance is ascribed to lysis and this to specific changes in fixed peritoneal cells.

That animals which have passed through the primary stage of infection should be more resistant need not surprise us, for the entire fabric of vaccination and artificial immunization is based on this doctrine. It is not so clear why the primary disease should not likewise be checked. Among a number of possible factors to account for this situation several may be mentioned:

1. Different tissues have different degrees of natural resistance, and the progress of the infection may at least in some cases be due to the accidental occurrence of metastatic processes in certain tissues. Thus, in rabbits the kidneys are as vulnerable as the lungs, if not more so. In guinea-pigs, macroscopic disease of the kidneys is exceedingly rare. The omentum of the guinea-pig following intra-abdominal injections of tubercle bacilli is always involved to some degree; after subcutaneous inoculation, never. The udder of cows is diseased in from 1 to 2 per cent. in spontaneous cases. It is, however, a very vulnerable organ, as shown by intravenous inoculations. In the spontaneous disease it is well protected, at least for a time, from invasion from primary foci.

The skin and subcutis are to all appearances more resistant than many other tissues, and immunity should show itself here more promptly than elsewhere. The relative immunity of the skin and subcutis is shown now and then by the absence of any local lesion following minute doses of attenuated bacilli. The nearby glands, however, are always diseased. It would seem as if in such cases the few bacilli left in the subcutis are suppresed and destroyed and those which are carried to the nearest lymph node find there the conditions for multiplication. The relative infectiousness of tubercle bacilli in different territories is well illustrated by the experiments of Findel, who found that for producing disease in guinea-pigs from 6,000 to 19,000 times as many tubercle bacilli were needed when fed than when inhaled.

The progress of tuberculosis once started in the guinea-pig may consist largely in the multiplication of bacilli in organs and tissues of a low degree of resistance. It may also depend to a certain degree on accidents which favor the approach to such organs. On the other hand, the resistance of the tuberculous animal to superinfection is readily broken down by slightly increased dosage, and is successful only when very minute doses come into play, as pointed out by Römer himself. Granted that Römer's inferences are correct in this, that a tuberculous focus once under way prevents the successful lodgment of the same infection in minute doses from without, we are still in the dark as to the fate of an infection of higher virulence. Knowing that strains of tubercle bacilli vary considerably in virulence, we cannot assume on the strength of Römer's experiments that all superinfection will be excluded.

Römer asserts as a result of his experiments that most if not all tuberculous infection dates back to early life. The large number of positive tuberculin tests in children give support to this assertion. The recrudescence of the disease during adolescence and later is referred to an early massive dose. Why this early dose should not have promptly displayed its energy and developed a progressive fatal disease, in view of the high susceptibility of early life toward all infections, needs explanation. A view more in accord with the general facts of infection and resistance would be to assume that the recrudescence is due to untoward conditions arising in modern life in the careers of most human beings, which not only reduce general resistance, but also create in one way or another special places of lowered resistance, as in the calf which carries the human type of bacillus; introduced as vaccine, until parturition creates a locus of lowered resistance in the udder, or through injury in the joints, or through parasitism. The gradual increase of resistance toward infections in general with age, which manifests itself not only in the species subjected to a given disease, but also in species which are not exposed to or afflicted with such a disease in nature, as in experimental animals, must also enter as a factor in favoring early and warding off later infection. Thus, O. Bang has shown that although horses are insusceptible to infection with the avian type of tubercle bacilli, colts respond to inoculation and may succumb to it.

RELATION TO PRACTICAL MEASURES

The facts and inferences presented by Römer are of interest from the standpoint of public health because of the derived practical measures which might gain headway. Thus it might be argued that there is no need of quarantining and suppressing infection, because a little tuberculosis is good for children, and adults cannot infect themselves anyway. Opposed to these measures we may assemble a number of important objections. We can never quite know when infection will be light or massive. We cannot tell whether the one infected is below par and will soon be a victim. We cannot tell how virulent any infection may prove to be. Lastly, we cannot tell when any given infected individual becomes again susceptible, because we cannot tell when the first process is extinguished. There is every reason, therefore, for continuing adequate, rational measures for the restriction of tubercle virus in transit. The susceptibility of the adolescent or adult may be no greater without than with the preliminary early dose. This is indicated by the comparative immunity of adults against bovine infection. In any case, for some time to come there will be enough infection about even with all precautions in operation to give the "vaccinal" dose to many in our congested centers of population.

The special aspect of acquired immunity introduced by the experiments of Römer is of sufficient interest to warrant a repetition of his work. His experiments with so-called animalized bacilli, which he obtains by removing and crushing tuberculous lymph nodes associated with the primary lesion, are not sufficiently numerous and conclusive wholly to meet the objection that in his earlier experiments the culture bacilli used for the second inoculation are not the equals of the bacilli which have been in the body for months, which have successfully met the increasing immunity of the host, and which are capable of continuing the invasion. On the whole, I think that the theory of von Behring and Römer that all infection dates from early life should be accepted with caution and reserve. My own view is that a bacillus coming from without into the lungs has as good a chance, other things being equal, as one carried there from some existing internal focus. If the internal infection is "massive" and the fresh infection light, the former is more likely to produce a focus of disease than the latter. If the fresh infection is massive and the other light, the fresh infection is likely to produce disease rather than is the metastatic process. This seems to me a safe attitude until more attention shall have been given to Römer's theory. It is probable that a more careful study of bovine tuberculosis may be of assistance. Here we have a spontaneous disease, agreeing in most points with the human disease. Very minute, detailed study of the lesions at necropsies should give us the information desired. To demonstrate superinfection it would be necessary after a careful exclusion of secondary processes to find in the lungs foci of different ages as indicated by the degree of necrosis, calcification and liquefaction.

USE OF PRODUCTS OF BACILLI

Passing from the problem of living and dead bacilli as immunizing agents, we come to the use of the so-called products. Among these, tuberculin, the substance which passes into the culture fluid from tubercle bacilli and which resists destruction by boiling, has enjoyed the greatest prominence since its discovery in 1890, when it was supposed to have marvelously curative powers. This prominence has been maintained in spite of the disappointment following a more detailed study of its real significance. The appearance of the phenomenon of anaphylaxis as a working problem in 1904 gave a new impetus to the further study of the tuberculin reaction because it agreed so closely with the reaction of hypersensitiveness.

It had been rather puzzling that a state of hypersensitiveness to tuberculin could not be brought about either by tuberculin itself or by dead tubercle bacilli. In a long series of unpublished tests made some years ago, I failed to obtain more than a fall in weight following treatment with heated tubercle bacilli. In 1910, Baldwin described a method with which an acute anaphylactic shock can be produced by postorbital injection of tuberculoprotein following sensitization by the intraperitoneal route. Krause, continuing the same work, found that the process of sensitization does not alter the resistance of animals to experimental tuberculous infection. Austrian, somewhat later, was able to produce active and passive anaphylaxis in guinea-pigs with a watery extract of pulverized tubercle bacilli by using the same method. Guinea-pigs made hypersensitive to this extract were not protected to any degree against experimental infection with tubercle bacilli. He found that "hypersensitiveness in guinea-pigs and rabbits exerts a neutral or baneful influence on a subsequent tuberculous infection." It should be mentioned that Baldwin found that guinea-pigs sensitized by intraperitoneal injection failed to react by the same route, but reacted when injected intracardially and postorbitally.

From these experiments of Krause and Austrian it would seem as if the introduction of tuberculoprotein was of no significance, or else harmful, in immunization. Yet it would be premature to conclude that the same is true for the human being. The guinea-pig is indeed hypersusceptible to tuberculosis, and recoveries are unknown, except, perhaps, after the use of highly saprophytized cultures. The energy required to lift the guinea-pig to an immune level cannot but be far greater than is needed for man, and may be unattainable. The apparently injurious effect of the sensitization in the guinea-pig may eventually be found to be due to a stronger but unsuccessful reaction.

The efforts of Much to separate the tubercle bacillus into its constituent antigens deserves mention, because they may aid in interpreting the obscure phenomena of tuberculosis resistance. Much separated bacilli into protein, fatty acid lipoids, neutral fat, and toxin. These he calls partial antigens. Each of these substances, if not denatured in the unlocking of the bacilli with heat and acids, produces its own antibody. Much claims that antibodies cannot be produced unless the bacilli have been opened up (*aufgeschlossen*) by suitable methods. Yet according to Römer a first inoculation of guinea-pigs leading to an active process produces resistance to fresh bacilli inoculated later. In this case the original bacilli *must* have been "opened up" by the guinea-pig tissues in order to bring about the increased resistance.

MODIFICATION OF THE TUBERCLE BACILLUS

During the second or multiplicative stage of the parasite cycle it is highly probable that tubercle bacilli regain some of their parasitic characters or strengthen those weakened by cultivation, just as some of the anthrax bacilli from cultures promptly assume the characteristic capsule after inoculation, while the rest are destroyed. During active multiplication all organisms are more or less vulnerable, and it is probable that during this period the surviving bacilli exercise new or augmented functions imposed on them by the developing immune bodies of the host. Such changes have been observed in organisms more labile and more subject to immune bodies than tubercle bacilli. Resistance to destruction in the bodies of immune animals was observed by Levaditi and Roché in the spirilla of tick fever. From three to six days after the crisis in the rat, a relapse occurs. The serum in the stage of relapse acts actively on spirilla of the first attack, but not on those of the relapse period. The antibodies are absorbed or bound by the spirilla of the first attack, but not by those of the relapse. Mesnil and Brimont made the interesting observation that in goats infected with *Trypanosoma brucei* there is after a time a progressive adaptation of the trypanosomes to the immune bodies of the goat's serum. Trypanosomes taken from such an animal at an interval of several weeks are no longer identical. The second lot of trypanosomes are immune to serum drawn with the first lot, while they are not immune to the serum taken at the same time. As a result, mice inoculated with trypanosomes of the second lot plus serum corresponding to the first lot die, while those inoculated with the reverse combination survive.

Bacilli coming directly from another host, as is the case in the natural disease, stand in some way under the influence of the developed immune bodies of that host, and are in far better position than culture bacilli to gain a foothold. It is well known in laboratories that small doses of such bacilli will accomplish more than large doses of cultivated organisms.

In the process of entry or infection, the actual significance of the sensitization which such bacilli are under as they come from a preceding host deserves more attention than it has hitherto received. Basing myself on the analogy between sensitized bacteria and toxin-antitoxin mixtures, I have attributed to the former greater penetrative power.

In ascribing to the bacteria coming from a patient with a well developed case of tuberculosis special resistive characters, we must distinguish between such characters as meet the immediate situation in the next host and such as permanently raise the virulence of the infecting agent. The former would simply disappear and reappear in each cycle, the latter would manifest themselves by greater virulence and a tendency of the induced disease toward epidemic proportions. We have no direct evidence to show that the usual passage of infection from individual to individual increases virulence, since the tendency of all infectious diseases has been toward a lower level of virulence. The tendency toward higher virulence may be there, but it may be concealed by a slow upward movement of host resistance due to selective elimination on the one hand, and by the natural elimination of too virulent strains on the other.

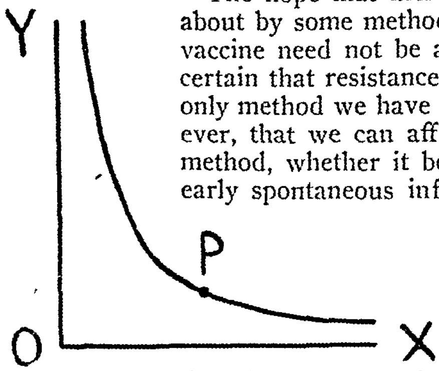
In general it is to be presumed that if the condition of the host changes during the course of the disease toward a greater specific resistance or immunity, the parasite cannot remain the same, for it must meet the new condition in order to survive and be excreted. Capacity for variation and adaptation and for temporary adjustments on the part of bacteria have been pointed out in many special researches. All procedures for the cultivation of tubercle bacilli tend to modify the bacilli to a certain degree, perhaps by tending to select and eliminate spontaneous varieties. Thus the cultivation of tubercle bacilli on blood serum, blood serum with glycerin, egg, egg with glycerin, and agar with glycerin leads to slightly different strains according to the special medium used. After a time, notably with the bovine type, highly luxuriant cultures are obtained on mediums, such as glycerin agar, on which multiplication at the start is impossible. At the same time the virulence diminishes as multiplication becomes more active. Just what changes take place have not been definitely pointed out. I have taken the position that the change in the direction of more abundant multiplication is in some way associated with a change in the outer envelope, be it the ectoplasm or a special membrane which, while favoring nutritive processes, makes the organism more vulnerable. If such profound changes may be induced by artificial cultural influences, it stands to reason that the living tissues are equally, if not more, capable of molding the bacilli in prolonged contact with them. There exist, therefore, various indications that tubercle bacilli undergo cyclic changes in their journey through the body on account of the growing resistance of the host. What these changes are we do not know; but arguing from analogy, we may suppose that the tubercle bacilli after a time develop resistant protective envelopes which at the same time check metabolism and stop multiplication.

Before concluding this last phase of the cycle, I need to call attention to the bearing of modifications of tubercle bacilli due to artificial cultivation on the interpretation of laboratory experiments. The gap between saprophytized bacilli from long-standing cultures and such still in the caseous material coming from a disintegrating focus must be very great. Such cultures passed through calves, for instance, and recovered many months later had not gone back to the original animalized condition, for the recovered cultures grew from the start luxuriantly. Whether such cultures, through passages, ever completely regain their original status has not been taken up.

The use of cultures is probably responsible for the statement that after injection polymorphonuclear leukocytes appear and later on disappear, taking no part in the development of tubercles. The leukocytes are probably attracted chemotactically by the suspending fluid and the disintegrating bacilli, always present in cultures after several weeks.

This phase of our subject, dealing with cyclic and other changes in bacteria, cannot be cleared up until epizootics among small animals are subjected to a close detailed study of all individuals involved. All that can be stated here is that miscellaneous evidence points to a cycle of varying resistance in each host, as well as slow movements of virulence up and down extending through many hosts and subject to many collateral influences.

The suppression of tubercle bacilli in the tissues directly through chemotherapeutic agents is now being prosecuted in various laboratories, and the ultimate outcome of such researches must be awaited with patience. One or more decades ago such ventures would have been regarded with a high degree of skepticism; but the success obtained since then in the direct elimination of trypanosomes and spirochetes, and the possibilities of still greater successes in this field make the realization of some restricting therapeutic agent in tuberculosis by no means chimerical. Since experiments in this field must first of all be conducted on laboratory animals, the results obtained thereby are likely to be both overvalued and undervalued, as it will require more or less time to adjust immunizing and remedial agents to the human disease. The differences between induced and spontaneous infections must not be overlooked. The relation between immunizing and therapeutic experiments on induced and spontaneous diseases is best shown by the accompanying diagram of a hyperbola. As I have stated elsewhere, the problem in laboratory experiments is to save the life of the animal; the by-products of the disease are not considered. In human disease, the treatment is concerned not so much with saving life as with curing more or less chronic affections. If we represent by distances on *OY* the degree of disease to be overcome, and on *OX* the amount of treatment to be applied to bring about a given resistance or cure, we usually begin in the laboratory on the upper limb of the curve which represents a fatal disease, and by vaccination or other methods rapidly bring the disease down to *P*. From there on, local lesions or the residual disease is cured with difficulty, the curve approaching *OX* very slowly. In the case of human diseases we usually begin treatment at such a point as *P*, and the rather spectacular drop (or immunity) obtained in the laboratory does not follow. The line of complete cure, *OX*, is approached only very slowly.



Relation between immunizing and therapeutic experiments on induced and spontaneous diseases.

RELATION OF PRESENT ASSURED KNOWLEDGE TO PRACTICAL PROBLEMS OF PREVENTION

While the practice of medicine cannot and does not wait for scientific discovery to supply the desired preventives and remedial agents, but goes its own pace, feeling and groping its way into unknown territories to search for the hoped-for cure, it nevertheless adjusts itself promptly to the acquisitions of medical research. The campaign against tuberculosis has always involved two distinct problems, to prevent the spread of infection and to cure the disease in the individual. These two problems are distinct, but related. One reacts on the other. To cure is equivalent to checking the spread of the infection. But I am not certain that they should not be kept distinct. One or the other will predominate if both are attempted. The movement against tuberculosis among the people, as indicated in the work of antituberculosis societies, has been, at the beginning, chiefly toward the prevention of disease by campaigns against the spitting habit. The movement as developed among the medical profession has been chiefly toward the cure of the disease, especially in early cases.

It is at least open to question whether the latter movement was logically indicated as a starting point. If quantity of infection is the menace, and if minute doses of infection may and do frequently lead only to a local disease which in many cases takes care of itself, it is obvious that the first step in the control of tuberculosis is to render harmless the most severe cases, so to secure them that the helpless bystanders do not suffer by taking in "massive doses." This is the first duty of the community. If there remains a surplus of energy, then it should be devoted to treating incipient disease. Only in this way can the disease be surrounded and the circle made smaller and smaller each year, until the germ is eventually eliminated. To give elaborate treatment to incipients and to neglect the menace of advanced cases is to keep the door wide open for more incipients. We are not now questioning the treatment in early cases, but simply the order of attack of the problem. No matter whether we adopt the view of von Behring that all tuberculosis is started early in life, or that it may enter the system at any time, the quantity of infection plays a prominent part in both theories, and a reduction of the quantity of infection is logically the thing called for.

The hope that increased resistance may be brought about by some method other than that of using living vaccine need not be abandoned as yet, but it is quite certain that resistance caused by the living virus is the only method we have at present. I do not think, however, that we can afford to play with this dangerous method, whether it be through the use of cultures or early spontaneous infection, but should work against all infection. For the time being there is still opportunity for getting small doses and a mild infection, and it will be time enough to consider this phase of the subject when the sputum of all dangerous cases has been satisfactorily disposed of.

Another result of both experimental and practical studies is the fact that there is a considerable store of natural resistance to the disease and this natural resistance is maintained by a normal life. If it is possible to restore patients with tuberculosis to health by applying natural remedies, such as rest in bed in the open air, and proper diet, it is obvious that we are utilizing the reserve of natural resistance to suppress the early disease. Hence the ordinary, simple, normal life may be relied on to suppress infection even before we are aware of its presence. The idea that we must first become diseased to be protected rests on a false understanding of what immunity, so called, consists of. It is nothing more than tissue reserves called into action. That there is a great underlying store of natural resistance, making early tuberculosis a curable disease in many cases, which has been demonstrated by the indefatigable labors of sanatoriums and private physicians, is the most valuable lesson we have learned, and a most important incentive to normal, hygienic living.

The Development of Learning.—Learning hath his infancy, when it is but beginning and almost childish; then his youth, when it is luxuriant and juvenile; then his strength of years, when it is solid and reduced; and lastly his old age, when it waxeth dry and exhaust.—Bacon, Essays Civil and Moral.

ACUTE PULMONARY ABSCESS TREATED WITH ARTIFICIAL PNEUMOTHORAX *

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In presenting these cases I wish to call attention to a simple, rational method of treating acute abscess of the lung, namely, artificial pneumothorax. This treatment is being universally used in pulmonary tuberculosis. A few cases of its use in old chronic lung abscess have been reported, but I have been able to find only one report in American medical literature of the use of compression of the lung in any condition similar to these acute pulmonary abscesses. Greer[1] reports a case, following pneumonia, of interlobar empyema draining through the bronchus, in which he effected a cure by compressing the lung with nitrogen, all symptoms clearing up in three weeks. I have only two cases to report, but as this work has been done without any previous experience as a guide, and is, so far as I know, an original method of procedure in these acute abscesses, I feel that it is of sufficient importance to report fully at this time.

REPORT OF CASES

Last July, I was called into consultation with Drs. White, Walker and Sterling Ruffin, to consider the best method of treating a case of acute lung abscess which had followed operation on the nose. I advised artificial pneumothorax as being a rational procedure, although its use heretofore had been confined entirely to pulmonary tuberculosis, with the exception of a few cases of chronic lung abscess of a year or more in duration, and one case of interlobar empyema reported by Greer. All modern medical literature advised rib resection with drainage, but I could find no reference anywhere to the use of lung compression.

Case 1.—Mr. H. C. P., aged 32, mining engineer, was injured in an elevator in a mine about the middle of June, 1916, sustaining a fracture of the superior maxilla and nose. He was brought to Washington and operated on, June 17, 1916, by Dr. Walker, who repaired the nasal septum, and Dr. White, who did a herniotomy. The patient's temperature became normal after the operation, and he was apparently making an uneventful recovery. June 26, which was nine days after the operation, his temperature suddenly rose, and ranged between 101 and 102 F. This was accompanied by pain in the chest and considerable sweating. The leukocytes were found to be between 20,000 and 30,000. Examination by Dr. Ruffin showed a moderately marked pleurisy with effusion at the left base, and a small amount of fluid was obtained by Dr. White on aspiration. The temperature and leukocytes remained high, however, and July 12, which was sixteen days after onset of symptoms, the patient suddenly coughed up a considerable amount of purulent sputum, and an abscess was discovered in the lower portion of the right lung. A roentgenogram was taken by Dr. Groover. The symptoms improved considerably during the week following the rupture of the abscess, but the patient was coughing up pus at frequent intervals, and the leukocytes still remained in the neighborhood of 20,000. July 22, the temperature began rising again and remained high, often going above 102. July 29, I was called in and asked concerning the possibility of using compression of the lung. I advised waiting a short time, hoping for a spontaneous recovery, especially in view of the fact that the operation would be somewhat in the nature of an experiment. We were also rather reluctant to collapse the abscessed lung on account of signs of pleurisy with effusion on the opposite side; but the patient gradually became worse. He was losing weight, had profuse sweating at times, considerable expectoration, and the temperature and leukocytes remained high. August 12, one month after the onset of the symptoms, I started a compression of the lung, injecting 150 c.c. of air into the pleural sac. I gave him another small injection, August 14, and a larger one, August 22, following which his temperature became normal, and with the exception of two days, remained so thereafter. He then received the injections about once a week, taking in all ten treatments. All cough and expectoration had stopped by September 15, and the leukocytes became normal, September 20. He gained 20 pounds after starting the pneumothorax, and was discharged as cured, October 15. The only unpleasant symptom caused by the gas in this case was some shortness of breath and cyanosis on one occasion following an unusually large injection.

October 15, Dr. C. W. Richardson called me in to use artificial pneumothorax in a case of acute lung abscess following tonsillectomy. Following is the case history:

Case 2.—Mrs. O. B., aged 27, had the tonsils removed by Dr. C. W. Richardson, Sept. 9, 1916, at the Episcopal Hospital. Three days after the operation she had some pain in the left chest which disappeared in twenty-four hours, and she was discharged, September 15, six days after operation, apparently well. The day after her return home, or seven days after operation, pain in the left chest returned, accompanied by high temperature. One week later she suddenly coughed up a large amount of pus. She returned to the hospital, September 28, with a temperature ranging between 102 and 104, pulse from 120 to 140, and respirations between 30 and 35. Her cough was very frequent and severe, and was accompanied by a large amount of purulent expectoration with a foul odor. A roentgenogram taken by Dr. Selby showed a large abscess in the left lung involving most of the upper lobe and some of the lower lobe. Dr. Charles White was called into consultation, and suggested pneumothorax rather than rib resection. The symptoms persisted until I saw the patient, October 15, which was four weeks after the onset of the trouble. She was in a condition of extreme prostration, and I started a collapse of the lung immediately, although I did not feel at all optimistic as to the outcome. The temperature, pulse and cough improved the day following the first treatment, and, October 17, two days later, I gave her a second treatment. That night she coughed up an unusually large amount of pus, and on the following day the temperature was normal and remained so thereafter. The pulse and respiration became nearly normal, and the cough diminished materially. October 21, another injection was given, and, October 24, just nine days after the beginning of the pneumothorax, the patient was discharged from the hospital and returned home. I gave her a treatment at her home, November 4, and all symptoms have disappeared. She will receive several more injections, about two weeks apart, in order to insure complete healing.

SUMMARY AND CONCLUSIONS

1. The mortality of acute lung abscess treated medically is high, approximately 60 per cent., and the percentage of cures is low, about 10 per cent.

2. The results with rib resection and drainage are better, but we still have a mortality of about 30 per cent. Moreover, this operation often leaves a patient with a draining sinus which may persist for a year or more.

3. Artificial pneumothorax is a rational method of treatment in all cases having a communication with the bronchus, and gives promise of appreciably lowering the mortality and raising the percentage of cure in acute abscess of the lung.

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* Read before the Medical Society of the District of Columbia, Nov. 8, 1916.

[1] Greer, A. E.: Interlobar Empyema Treated by Artificial Pneumothorax, The Journal A. M. A., April 1, 1916, p. 1019.

A COMPARATIVE STUDY OF THICK AND THIN BLOOD SMEARS FOR DIAGNOSIS OF MALARIAL FEVERS

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The difficulties of specific diagnosis in chronic malaria, as well as in many of the more acute manifestations, has been appreciated by physicians generally, and more especially by public health investigators in connection with index determinations. With discovery of the malarial organism by Laveran, in 1880, it first became possible accurately to differentiate malaria from other febrile conditions, and later to separate the three types of infection. The well known thin smear methods of blood examination have distinct advantages for purposes of morphologic study; with the presence in a large proportion of cases, however, of but few parasites in the peripheral circulation, requiring at times hours of study for demonstration, methods have been sought whereby a larger amount of blood could be examined so as to make possible increased accuracy of diagnosis. The first use of thick films was made by Ross, and the technic was modified later by Ruge and others. Dampwolf, in a study of malaria at Dar-es-Salaam, made a series of thick and thin comparisons. Of 9,758 adults and children, 8.5 per cent. were found to be positive on thin smear examination, and of 5,770, 25.7 per cent. were found positive on thick film examination. James, in a study of malaria in the Canal Zone, examined 100 cases by both methods, obtaining 94 per cent. positive, using thin films. Thick unfixed stained specimens were used by Muehlens in an investigation of malaria at Emden, Germany; he found both thick and thin smears positive 131 times, and the thick positive with thin negative, 102 times.

The object of this paper is to present the results of a series of comparative studies of thick and thin blood smears carried on in connection with malarial index examinations of the United States Public Health Service under the direction of the late Surgeon R. H. von Ezdorf, and with a number of cases examined and followed in the Marine Hospital.

While smears were being taken for the purpose of establishing an index in North Carolina, during the fall of 1913, one thin and one thick smear was secured from 3,613 apparently healthy individuals to determine the percentage of carriers in the various localities. For this purpose the thick smears alone were used, while the thin smears were examined to note any blood changes and to make differential counts. From the number of positive findings, 526 "thicks" in which the parasites had been demonstrated in five minutes' time, the $1/12$ oil immersion being used with a 3 × and 4 × ocular, were selected and compared with the corresponding "thins." Of the 526, only 125 of the "thins" were confirmed, thirty minutes being given to a slide. Thus it will be readily seen that 263 hours were consumed in examining the "thins," confirming only 125, while only forty-three and one-third hours were spent on the thick films, in which time 526 were found positive.

The method employed in the dehemoglobinizing and staining of the smears is the one regularly used in the laboratory of the Malarial Investigation Division, and has been fully described by von Ezdorf.[1]

PROCESS OF DEHEMOGLOBINIZING

The slides are placed in a 2 per cent. hydrochloric acid solution in 70 per cent. alcohol, until the smears are thoroughly decolorized, which will require at times from one to several hours. The process may be hastened by first soaking the slide in water for from one to two minutes, until the process of laking out the hemoglobin begins, and then placing in acid alcohol for completion; but the greatest care must be exercised if the latter addition is made, owing to the fact that there is danger of washing the cells out, and consequently lessening the likelihood of finding the parasites. After complete fixation and laking out of the hemoglobin, the slides should be removed from the acid alcohol and washed in a brisk stream of tap water for fifteen minutes, in order to remove and neutralize the acid absorbed. The acid alcohol may be used several times until saturated with hemoglobin.

The stain employed is a modification of the original Giemsa, omitting the glycerin; but any modification of the Romanowsky method may be used.

Stock Solution.—1. Eosin, 1 gm.; distilled water, 1,000 c.c.

2. Azur *II*, 1 gm.; distilled water, 1,000 c.c.

Ten c.c. of each of the two solutions are added to 40 c.c. of water (preferably distilled), and the smears are stained for not less than thirty minutes. This gives a dark purple appearance to the smear, while the chromatin of the parasites takes a dark red stain (polychrome) with blue protoplasm, and the nuclei of the leukocytes take a deep blue. There is an advantage in using 10 c.c. of each of the stock solutions of eosin and azur to 40 c.c. of water, as the weaker solutions (5 c.c. of each to 40 c.c. of water) fail to give the deep red of the chromatin in the usual time for staining. This is especially noticeable in staining gametes. If rapidity is desired, full strength of the stock solution may be used, or good results can be obtained by using Wright's stain in the usual way.

APPEARANCE OF THE THREE TYPES OF PARASITES

It is of interest to give an outline which may serve as a useful guide in differentiating the organism in the thick film, and distinguishing the normal from the abnormal appearance. It is easy for even the most casual observer, provided he is familiar with the normal constituents of the blood, to recognize the malaria organisms in the red blood cells; but it takes the experienced eye to recognize them in a dehemoglobinized preparation, as they no longer retain all of their normal characteristics. Therefore experience, and experience alone, can bring about confidence and accuracy.

Simple Tertian.—(*a*) The young ring forms, as a rule, are larger than those of the estivo-autumnal and quartan.

(*b*) They are found in varying sizes, from the young schizont to the segmenting forms.

(*c*) When the rings are complete, the cytoplasm opposite the chromatin is more likely to be thickened in this form than in any other.

(*d*) The deep red chromatin dot, with the deep blue dash of cytoplasm, not completing the ring, is quite characteristic.

(*e*) The chromatin dot usually occurs singly.

(*f*) The gametes are usually irregular in appearance, and there is less pigment than in the gametes unaffected by acid.

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[1] Von Ezdorf: Reprint 159, Public Health Reports.

(*g*) The segments of the dividing forms are not in close contact as in the unruptured cells of the thin films.

Estivo-Autumnal.—(*a*) In active cases the young ring forms are more numerous than in the tertian and quartan.

(*b*) Rings are smaller and more delicate in appearance, with a small amount of cytoplasm which is not thickened at any point to any appreciable degree.

(*c*) All of the rings are apparently of the same age and size.

(*d*) A double chromatin dot is present in many of the rings.

(*e*) Crescents are present in chronic cases which in many instances will be found to be distorted, with irregular outlines. Some may appear perfectly straight and shrunken on account of acid, but never lose their pigment.

Quartan.—(*a*) The young ring forms are much heavier and contain much more protoplasm than is found in the tertian and estivo-autumnal.

(*b*) The chromatin dot takes a deeper red stain than the other two varieties.

(*c*) There is less tendency toward branching, and the older forms of the rings are much more apt to remain in contact than those of the tertian.

(*d*) Bands with heavy black pigment are present which are not to be found in the other two varieties of organisms.

(*e*) The gametes have less tendency to lose their characteristics than in the tertian. Heavy black pigment is quite characteristic.

ADVANTAGES OF THE METHOD

Besides being a great time-saving device, this method has a great advantage over the thin film method, in that it gives an adequate idea of the degree of infection, both before and at various times during treatment. In addition, the process of dehemoglobinizing and staining works automatically in that the slides may be left in acid alcohol over night and stained for twelve hours or more without any appreciable damage to the parasites.

It is to be remembered in examining the blood of latent cases of malaria for parasites that they are often very hard to find, sometimes only a single parasite being found even in many fields of the thick film (after a few minutes' search) and it has been our custom in such scanty infection to seek for others for confirmation unless the first was distinctly clear and its morphology could be made out easily. The advantages are much greater to find a second parasite by the "thick thin film" when the hemoglobin has not been laked out with water or in the "thick film," when the specimens have been rendered clean by dehemoglobinizing with acid alcohol.

I wish to emphasize that this method, although requiring experience to bring about accuracy in distinguishing the parasites, has a great advantage over any practical method we have at hand, in that it is a time-saving device as well as more accurate and efficient, where chronic cases are involved. Also, if it is employed in the diagnosis of all suspects of malaria, and the patient treated accordingly, certainly it will lessen the likelihood of the mosquito receiving infection, and consequently weaken the endless chain which continues the propagation of malaria, namely, man to mosquito and mosquito to man.

THE LONGEVITY OF ADULT ASCARIDS OUTSIDE THE BODY OF THE HOST

ITS BEARING ON ANTHELMINTIC TREATMENT

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DETROIT

Wharton[1] has recorded experiments in which he kept the eggs of the common roundworm of man, *Ascaris lumbricoides,* alive in Kronecker's salt solution (physiologic sodium chlorid solution to which 0.06 gm. of sodium hydroxid per liter is added) for from six to twelve days. While I was in the service of the federal Bureau of Animal Industry, I made some tests to determine the length of time that the common roundworm of the pig, *Ascaris suum,* could survive outside the body of the host. A number of these worms had been collected and thrown into about a 5 per cent. dilution of liquor formaldehydi and left for a few minutes. They were taken out of the formaldehyd and nine of them placed in Kronecker's solution and nine placed in physiologic sodium chlorid solution. The height at which the solution stood when made up was marked on the glass dishes containing them, and once a day distilled water was added to replace that lost by evaporation. The condition of the worms was noted every day except Sunday, and the room temperature noted every day except Sunday from the fifth day to the end of the experiment.

During the course of the experiment, the room temperature ranged from 27.5 to 30 C. (from 81.5 to 86 F.). The last survivior in the physiologic sodium chlorid solution, a male, was alive on the fourteenth day after removal from the host, and was found dead on the fifteenth day. Three females survived for nineteen days in Kronecker's solution; two of these survived for twenty-four days, and one of these was alive on the twenty-sixth day after removal from the host and was found dead on the following day. In another experiment in which ten specimens of *Ascaris suum* were kept in physiologic sodium chlorid solution, one worm was still alive on the fifteenth day. It appears, then, that ascarids may survive for fifteen days in physiologic sodium chlorid and for twenty-six days in Kronecker's solution.

The particular interest which attaches to this experiment is its bearing on a very common idea in connection with anthelmintic treatment. It is quite commonly believed, and the belief is shared by many physicians and veterinarians, and is expounded in reputable medical literature, especially the older literature, as well as in the advertisements of commercial houses, that when a patient infested with worms is fasted for twelve or twenty-four hours, the worms become hungry as a result of this lack of food, and that when an anthelmintic is administered, especially when it is given in some such vehicle as milk, the hungry worms will ingest the anthelmintic and thereby become poisoned.

There are two or three objections to such a belief. In the first place, when these worms can survive for twenty-six days in such an unnutritious medium as Kronecker's solution, it is unlikely that they would suffer the pangs of hunger after twelve or twenty-four hours in contact with the collapsed walls of the intestine and the relatively abundant content of food, epithelial débris and secretions which is still present after such an interval. Moreover, it is known that the digested or partly digested food in the lumen of the host intestine is not the only food of parasitic worms, and it may constitute in some cases a very small part or no part at all. Garin says that nematodes of the digestive tract live at the expense of the wall of the digestive tract in all cases, and not on food in the lumen. According to Garin, some worms (*Heterakis papillosa*) live on mucus and intestinal juices; others (*Oxyuris, Ascaris lumbricoides, Ascaris suum*) live on epithelial cells; others (*Ascaris rotundata, Physaloptera clausa, Habronema microstoma*) live on lymphatic cells and lymph; others (*Strongylus, Ancylostoma, Graphidium, Trichuris*) live on blood. He states that the attack on the mucosa may be mechanical (with teeth, etc., as in the case of hookworm) or chemical (by digestive secretions, as in the case of whipworms). Much remains to be learned in this connection, but it is known that such forms should suffer no inconvenience whatever during the period in which the host animal is deprived of food. Finally, it is not necessary to suppose that anthelmintics must be voluntarily ingested by the parasitic worms in order that the worms may be destroyed. It is likely that they are either ingested without volition or that they exercise their lethal effects in some cases by absorption, as may be the case with such volatile anthelmintics as chloroform.

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[1] Wharton: Philippine Jour. Sc., 1915, **10**, 19.

In any case, the preliminary fasting, as well as the preliminary purgation, previous to anthelmintic treatment is, of course, a very desirable procedure. But its utility lies in the fact that it removes the bulky food mass which might otherwise protect the worm against the anthelmintic action.

THE COMPLEMENT FIXATION TEST IN THE DIAGNOSIS OF TUBERCULOSIS [*]

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The great desirability of reaching an early diagnosis in tuberculous infection has led to much work being done in laboratories in the search for some test which would make such a diagnosis possible, with the result that the various tuberculin reactions were discovered, as well as other methods, as the serum skin reaction of Bronfenbrenner.[1] All of these diagnostic methods, however, have proved more or less unsatisfactory in the differentiation of active and inactive tuberculosis and a criterion of cure.

As early as 1910, Ruppel and Rickmann[2] made use of complement fixation in the diagnosis of tuberculosis in cattle, using old tuberculin as an antigen, and obtained positive results only in tuberculous animals, although no fixation occurred in some known to be tuberculous. Stimulated by this work, numerous investigators, notably Caulfield and Beatty,[3] Calmette and Massol,[4] and Hammer,[5] demonstrated that complement fixation could be obtained in a certain proportion of cases of human tuberculosis with the use of several different antigens, and it was the studies of Wassermann and Bruck on complement fixation in tuberculosis which led them to investigate, with Neisser, the question of the possibility of devising such a test for the diagnosis of syphilis, an investigation resulting in the discovery of the Wassermann reaction.

Until 1914, however, when Besredka published the results of his work, no complement fixation test for tuberculosis had been devised which was considered of any great value in the diagnosis of the disease or as useful as some other and better known diagnostic measures. In 1913, Besredka[6] described a special method of cultivating the tubercle bacillus on a medium consisting of broth, egg white and egg yolk, and in 1914 he[7] described the results which he obtained with an antigen made by filtering cultures grown on this medium, in the diagnosis of tuberculosis by complement fixation. His results were most encouraging, and were soon confirmed by Inman[8] and by Bronfenbrenner,[9] using antigens prepared by Besredka.

The chief difficulty encountered in devising a complement fixation test for this disease appears to have been in securing a suitable antigen, for enough successful work has been on record for a long time proving that in tuberculosis antibodies are formed which may be demonstrated by complement fixation, and that the test is a true specific reaction and not lipotropic in nature, as is the Wassermann reaction. Various substances have been used for antigens, as suspensions, variously prepared, of the tubercle bacillus; the various tuberculins; extracts of the tubercle bacillus, and antigens prepared by extracting tuberculous tissues. Varying degrees of success have been obtained with many of them, but, as has been stated, until the use of Besredka's antigen, none had given results which made the test of practical value to the physician.

In 1915, I[10] described my results with complement fixation in tuberculosis, using an antigen prepared from several strains of the human tubercle bacillus grown on an alkaline broth containing egg white and egg yolk, a medium practically identical with that employed by Besredka; but the antigen, instead of being a simple filtrate of the culture, was prepared by extracting with alcohol in the shaking machine and in the incubator, after which it was filtered through a fine filter paper and titrated for its antigenic qualities. It will thus be seen that the antigen which I first used consisted of a filtrate of an alcoholic extract of several strains of the human tubercle bacillus plus the culture medium in which the organisms had been grown. The most important factor in this antigen, aside from the thorough extraction of the bacilli, consisted in its being polyvalent, this form of antigen being suggested by the fact that there are marked variations of both human and bovine tubercle bacilli in both cultural relations and infective power. I have since used antigens made in the same manner but prepared from the surface growth of the various strains of the bacillus grown on Vedder's starch medium, and these antigens have given even better results than the one originally used, and have the advantage that they are not contaminated with the medium on which the bacilli are grown, and

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[*] From Department Laboratory No. 2, Southern Department, U. S Army, El Paso, Texas

[*] Read at the meeting of the El Paso County Medical Society, Nov. 6, 1916

[1] Bronfenbrenner, Joseph: Proc. Soc. Exper. Biol. and Med., 1914, **11**, 90

[2] Ruppel and Rickmann: Ztschr. f. Immunitätsforsch, 1910, **6**, 34.

[3] Caulfield and Beatty Jour. Med Research, 1911, **24**, 122

[4] Calmette and Massol. Compt. rend Soc de biol, 1912, **73**, 120

[5] Hammer: Deutsch tierärztl Wchnschr, 1912, **20**, 593; München med Wchnschr, 1912, **59**, 1750

[6] Besredka, A: Compt. rend Acad d Sc, 1913, **156**, 1633

[7] Besredka, A.: Ztschr. f. Immunitätsforsch, 1914, **21**, 77.

[8] Inman: Compt rend Soc de biol, 1914, **76**, 251

[9] Bronfenbrenner, Joseph The Complement Deviation Test with Besredka's Tuberculin, and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by This Test, Arch. Int Med, December, 1914, p 786

[10] Craig, C. F.: Am Jour. Med. Sc, 1915, **150**, 781.

96.7 per cent. in the incipient cases and 98.3 in the moderately advanced cases.

It will be noted that there were four far advanced cases which were classed as inactive. In these cases the clinical symptoms were in abeyance and the lesions in the lung were quiescent. In all of them the test gave a positive reaction, thus indicating the presence of an active infection, although symptoms and physical signs spoke in favor of an arrestment of the disease.

Group 2.—This group included all cases tested having a clinical diagnosis of some disease other than tuberculosis. In all, 450 persons were tested, of whom 350 were suffering from syphilis and gave a positive Wassermann reaction. Of the total number examined, twenty-two, or 4.4 per cent., gave a positive reaction with the complement fixation test for tuberculosis. Of the positive cases, eighteen were syphilitics, while the remaining four were all suffering from disease of the respiratory tract, four from acute bronchitis and two from acute pharyngitis.

As noted, eighteen, or 5.4 per cent., of the 350 syphilitics tested gave a positive reaction with this test. That the positive result was not due to syphilis, however, I believe is demonstrated by the fact that so small a proportion of syphilitics gave such a result, and the history of many of the cases which did react positively. Thus, five had definite lesions in the lung; three had a rise of temperature in the afternoon at the time the test was made, and four afterward showed tubercle bacilli in the sputum. The remainder, while showing no symptoms of the disease, were, in all probability, in the incipient stage of tuberculosis. In my previous paper on this subject I gave the results of the test in 150 syphilitics, all positive to the Wassermann test, and all negative with the complement fixation test for tuberculosis. The present figures are not so good as this, but the few cases which have reacted positively can, without much doubt, be considered as tuberculous as well as syphilitic, for it would be strange, indeed, if one could test 350 syphilitics without finding a certain proportion infected also with tuberculosis.

Of the patients suffering from other diseases at the time the test was made, all gave a negative reaction with the exception of the four mentioned, all suffering from acute conditions of the respiratory tract. It is impossible to state at this time whether or not these cases are tuberculous, but from my experience with the test I believe that they are. A large number of diseases were tested, and with the exceptions mentioned the reactions were negative in all. I believe that the results obtained demonstrate that this test will not give positive results with diseases other than tuberculosis.

Group 3.—The persons tested in this group were young healthy soldiers, free from any sign or symptom of tuberculosis. Of this class there were 200 men tested, and but one, or 0.5 per cent., gave a positive reaction. This one man, it is interesting to note, developed an afternoon rise of temperature, night sweats, and loss of weight shortly after the test was made, and has since had two hemorrhages; but no tubercle bacilli have ever been found in his sputum.

The fact that the complement fixation test for tuberculosis was negative in so large a number of persons suffering from other diseases and in health speaks strongly in favor of its being a specific test for active infection, for among this number of persons there must have been many with encapsulated tuberculous lesions, in whom any of the tuberculin tests would have given a positive reaction.

COMMENT

The work here recorded, as well as the latest observations of Bronfenbrenner, Miller and Zinsser, and others, demonstrates, I believe, that the complement fixation test for tuberculosis has reached a stage of development at which it can be used with confidence by the practitioner in the diagnosis and as a criterion of the cure of tuberculous infection.

From my own experience I can mention many examples of tuberculous infection diagnosed by this means which it would have been impossible to diagnose with any other method at our command, and in so-called cured infections, when this test gave a positive result, a clinical relapse occurred in the vast majority of the cases that were followed. While it certainly would be premature to consider that a negative result with this test indicates cure or absence of the disease, the fact remains that the test is negative in many cases that have not relapsed clinically, and in healthy persons and in diseases other than tuberculosis. Repeated negative results, extended over a considerable period of time, should be sufficient, in my opinion, to warrant a statement that the infection is cured or that the disease is not present, in instances in which a diagnosis is in doubt. As with the Wassermann test, a single negative is of little value in excluding the disease. Variations occur in the strength of the reaction from day to day comparable with those which I have shown to occur with the Wassermann reaction, and these variations may be sufficient to render a positive reaction negative or weak at intervals, so that a single negative reaction should never be relied on in excluding tuberculosis. Although these variations in the strength of the reaction occur very rarely, the fact that they do occur renders a single negative test of little value if one desires to exclude tuberculosis.

I believe that a positive reaction with this test indicates the presence of an active tuberculous focus, and that as long as the reaction remains positive, the patient should not be considered as cured. This belief has strengthened with every test which I have made, and has been confirmed by the results obtained with the test by recent investigators. I believe that the complement fixation test for tuberculosis has come to stay, and that it is only a question of time before it will be as widely used and as useful to the physician as is the Wassermann test for syphilis.

Rice Growing and Malaria.—So far as we know, the best example of the influence of an economic situation on public health work is that from California which began with the new commercial enterprise, rice growing. In the four years since rice was first grown for commercial purposes in the state, the returns have been very great, and the acreage has increased fully 100 per cent. Rice growing makes possible the cultivation of land otherwise useless, with a profit of millions of dollars to the state. Obviously, here is an industry that has come to stay. But, unfortunately, the conditions ideal for the cultivation of rice—land flushed with standing or gently moving water—are ideal also for the growth of mosquitoes. Of the myriads of mosquitoes found during the long summer season in rice areas, 70 per cent. were of the *Anopheles*, or malaria-bearing variety. These sections of the state were malarial enough before the rice growing began; of late the increase of the disease has been so marked as to constitute a menace and to require definite measures for abatement in individual districts.—Alice Hamilton, *Survey*, Jan. 20, 1917.

SYPHILIS AS AN ETIOLOGIC FACTOR IN MONGOLIAN IDIOCY*

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AND
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The etiology of Mongolian idiocy remains as obscure today as when first described by Downs[1] in 1866. As one might expect *a priori*, the theories are numerous and comprehensive. The help of the omnipresent and omnipotent *Spirochaeta pallida* and *Bacillus tuberculosis* has frequently been invoked.

TABLE 1—SUMMARY OF PATERNAL HISTORIES

Father	Number of Case												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Age at present..	46	35	42	29	46	42	36	48	50	38	27	39	42
Age when married	25	22	23	22	42	22	32	39	31	22	21	26	22
Age when patient was born	43	33	41	25	45½	39	33	48	50	33	26	37	33
History of syphilis	—	—	—	—	—	—	—	—	—	—	—	—	—
History of venereal infection.	—	—	—	*	—	—	—	—	—	—	—	—	—
Present or past evidence of syphilitic infection ...	—	†	—	—	—	—	—	—	—	—	‡	§	—

* Had gonorrhea
† Had diffuse rash on body, itching, which lasted two months when 25 years old
‡ Has skin eruption; frequent headaches.
§ Has heart trouble

Downs, in his original communication, favored the tuberculosis hypothesis. To quote, "They [Mongolian idiots] are for the most part instances of tuberculosis in the parents" It would be beyond the scope of this paper to enter into an exhaustive consideration of the various opinions concerning the etiology of this characteristic type of idiocy.

We merely wish to go on record as opponents to the recent views of Stevens,[2] who tries to incriminate congenital syphilis as the underlying cause. Stevens' views are best appreciated by quoting from his latest published article:[3]

> In a previous article I presented results which indicated, with a high degree of probability, that the condition known as Mongolian idiocy was one of the manifestations of congenital syphilis
>
> At the outset it may be stated that the findings in these cases [Series 2] confirm, in almost every particular, the results of Series 1
>
> While the serologic tests seem to demonstrate *beyond question* that this condition is a result of syphilitic infection, it is not, however, to be considered a form of frank cerebrospinal syphilis The characteristic facies of the Mongolian syndrome and the dwarfing of the body make it appear probable that the syphilis acts primarily on some of the endocrine organs, possibly the pituitary body. [Italics ours]

A critical review of Stevens' articles shows that his deductions are scarcely warranted by the data presented

All the conclusions are based on an examination of the blood serum and the cerebrospinal fluid, particular significance being attached to the cerebrospinal fluid examination, especially the results of the globulin and colloidal gold chlorid tests. The latter test, when positive, is probably due to an increased globulin, which in turn predicates inflammatory or irritative involvement of the central nervous system. The logical conclusion from Stevens' findings, provided they were accepted, would be that mongolism is a cerebrospinal type of congenital syphilis and not a form of syphilis acting "primarily on some of the endocrine glands, possibly the pituitary body."

In the report of Stevens' second series of eighteen cases, he says:

> 1. The Wassermann reaction on the blood serum [Noguchi modification] . . . was positive in 33 per cent (six out of eighteen) of the cases

According to the table given, two are designated with + + +, two with + +, and two with +. On the basis of these figures it hardly seems justifiable to us to state without reservation that the reactions were positive in 33 per cent. Those with the + and + + should at least have been repeated.

Churchill and Austin[4] state that "the + + + reaction gives a positive diagnosis, but in the absence of any suspicion clinically, a repetition of the + + + reaction should be obtained. When the clinical picture is entirely negative and the Wassermann test is + or + +, a repetition on the blood collected later will frequently be negative." Furthermore, from the description of the technic it appears that only one antigen was used, "acetone insoluble extract of beef heart." At least two antigens, and better three or four, should have been used.

> 2. The Wassermann reaction on the spinal fluid was positive in 11.1 per cent. (two out of eighteen) of the cases

These reactions Stevens designates by a single plus (+).

> 3 Pleocytosis was present in no case.

TABLE 2—SUMMARY OF MATERNAL HISTORIES

Mother	Number of Case												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Age at present	43	32	42	26	44	38	30	41	43	40	23	37	45
Age when married	21	19	22	19	40	16½	26	31	24	24	17	24	25
Age when child was born. .	39	30	39	21	43½	35	27	41	43	35	22	35	36½
History of syphilis	—	—	—	—	—	—	—	—	—	—	—	—	—
History of venereal infecton. ..	—	—	—	—	—	—	—	—	—	—	*	—	—
Number of pregnancies	4	6	10	2	6	8	2	8	8	8	4	6	8
Number of miscarriages	1	0	0	0	1	1	0	0	1	0	1	0	0
Age of fetus in mo at miscarriage	6	..	..	.	3	6	..	..	2	..	2		
Which pregnancies miscarried	1st		..		4th	1st	..	..	5th		2d		
No of stillbirths .	0	0	0	0	0	0	0	0	0	0	0	0	0

* Had leukorrhea several years ago

This seems to show an absence of any meningeal involvement, and is hard to reconcile with an increase of globulin in every case.

> 4 The globulin content was increased in 100 per cent.

This is difficult to reconcile with an absence of pleocystosis in every case.

> 5. The gold chlorid reaction was present in 100 per cent. of the cases [90 per cent. in the first series].

The analysis of the chart shows that this assertion is scarcely warranted. Cases 3, 4, 8, 9, 10, 19 and 20 (seven out of the entire twenty-one cases, or 33 per cent.) show practically negative curves. As authority for this assertion we quote Miller, Brush, Hammers and Felton[5]:

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* From the Department of Pediatrics, Western Reserve University, School of Medicine, and the Babies' Dispensary and Hospital

[1] Downs, J. L · Clinical Lectures and Reports, London Hospital, 1866, 3, 259

[2] Stevens, H C · Mongolian Idiocy and Syphilis, The Journal A M A, May 15, 1915, p 1636; The Spinal Fluid in Mongolian Idiocy, ibid, April 29, 1916, p 1373

[3] Stevens, H C · Footnote 2, second reference

[4] Churchill, F. S, and Austin, R S: Frequency of Hereditary Syphilis, Am Jour. Dis Child, October, 1916, p 355

TABLE 3.—SUMMARY OF HISTORIES OF THE OTHER OFFSPRING

Offspring	Number of Case 1	2	3	4	5	6	7	8	9	10	11	12	13
Number of children living	4	5	8	2	5	8	2	6	7	6	3	4	5
Present or past evidence of syphilis	—	—	—	—	—	—	—	—	—	—	—	—	—
Skin at birth	—	—	—	—	—	—	—	—	—	—	—	—	—
Bloody rhinitis	—	—	—	—	—	—	—	—	—	—	—	—	—
Bones	—	—	—	—	—	—	—	—	—	—	—	—	—
Eyes	—	—	—	—	—	—	—	—	—	—	—	—	—
Ears	—	—	—	—	—	—	—	—	—	*	†	—	—
Teeth	—	—	—	—	—	—	—	—	—	—	†	—	—
Number of children dead	0	1	2	0	1	0	0	2	1	2	1	2	3
Cause of death§	..	—	—	..	—	..	..	—	—	—	—	—	—
Physical and mental condition of living children§	—	—	—	—	—	—	—	—	—	—	?	—	—

* One child has chronic suppurative otitis media.

† *Five children had chronic suppurative otitis media; teeth in all children poor; one child has edema of feet.*

§ The minus sign means that nothing suggestive of syphilis could be determined.

> *In spinal fluids otherwise negative, the occurrence of the gold reactions of this type (1111000000) is the equivalent of an absolutely negative finding and should be regarded as such. A colloidal gold reaction of the type 1121000000 is so commonly seen in spinal fluids otherwise normal that it probably possesses no significance, especially in cases clinically not luetic.*

Thus of Stevens' first series the gold chlorid is positive in 66⅔ per cent., instead of 90 per cent. as claimed. In the second series, eliminating Cases 2, 10, 11, 12 and 18, we find the colloidal gold reaction positive in only 72.2 per cent., instead of 100 per cent. as claimed.

6. The color changes of the gold chlorid reaction are typical of cerebrospinal syphilis.

The author *evidently* considers anything from 1211000000 to 1244421000 as a positive reaction typical of cerebrospinal syphilis.

REPORT OF *REINVESTIGATION*

By a simple analysis of Stevens' reports, the evidence does not seem to justify the conclusions. Consequently, we have repeated the work on a different series of patients, thirteen in number, who were seen at the Babies' Dispensary and Hospital and the Cleveland City Hospital. In all these cases, in addition to careful personal and family histories, there have been meticulous physical examinations supplemented by the usual laboratory procedures.

Only typical cases of Mongolian idiocy have been used in this series, and we consider this important because in a few cases the question of differential diagnosis between mongolism and congenital syphilis is not easy. At present, we have under observation a congenital syphilitic in whom the fissured tongue, lips, depressed bridge of the nose, facies, physique and mental status strongly suggest mongolism.

In the cases reported by Van der Bogert,[6] the first child was a typical Mongolian, the second normal, and the third and fourth twins. One of the latter, on account of congenital syphilis, had a Mongolian facies, and is similar to the foregoing.

Laboratory Technic.—The Wassermann test of the blood serum and spinal fluid was done in all of the thirteen cases. In the performance of this test, four different antigens (all carefully titrated for antigenic, anticomplementary and hemolytic properties) were used in each case. With the exception of the antigens, the original Wassermann technic was followed, half quantities being employed. Stated in terms of the half quantities, we used 0.1 c.c. of blood serum and from 0.25 to 1 c.c. of spinal fluid, as shown in the accompanying tables. The antigens used were: (*a*) an alcoholic extract of guinea-pig or beef heart; (*b*) an alcoholic extract of human heart; (*c*) antigen A + 0.4 per cent. cholesterin, and (*d*) antigen B + 0.4 per cent. cholesterin.

TABLE 4.—SUMMARY OF PERSONAL HISTORIES

Patient	Number of Case 1	2	3	4	5	6	7	8	9	10	11	12	13
Which pregnancy	4	6	10	2	6	7	1	8	9	6	4	6	8
Present or past evidence of syphilis	—	—	—	—	—	—	—	—	—	—	—	—	—
Skin at birth	—	—	—	—	—	—	—	—	—	—	—	—	—
Bloody rhinitis	—	—	—	—	—	—	—	—	—	—	—	—	—
Bones	—	—	—	—	—	—	—	—	—	—	—	—	—
Eyes	—	—	—	—	—	—	—	—	—	—	—	—	—
Ears	—	—	—	—	—	—	—	—	—	—	—	—	—
Teeth	—	—	—	—	—	—	—	—	—	—	—	—	—

The cerebrospinal fluids were also examined for the cell count, Ross-Jones and Pandy tests for increased

TABLE 5.—LABORATORY FINDINGS

Case No.	Blood: Wassermann Reaction: Amount of Serum Used, C.c.	Reaction with Antigen Number 1	2	3	4	Cerebrospinal Fluid: Wassermann Reaction: Amount of Fluid Used, C.c.	Reaction with Antigen Number 1	2	3	4	Cells per C.mm.	Globulin: *Pandy*	*Ross-Jones*	*Colloidal Gold Test* 1	2	3	4	5	6	7	8	9	10
1	0.1	—	—	—	—	0.5	—	—	—	—	1	—	—	0	0	0	0	0	0	0	0	0	0
2	0.1	—	—	—	—	0.25 0.5	—	—	—	—	2	—	—	0	0	0	0	0	0	0	0	0	0
3	0.1	—	—	—	—	0.25 0.5	—	—	—	—	4	—	—	0	0	0	0	0	0	0	0	0	0
4	0.1	—	—	—	—	0.25 0 5	—	—	—	—	3	—	—	0	0	0	0	0	0	0	0	0	0
5	0.1	—	—	—	—	0.25 0.5	—	—	—	—	2	+	—	0	0	0	1	1	1	1	0	0	1
6	0.1 0.2	—	—	—	—	0.25 1.0	—	—	—	—	3	+	—	1	2	2	2	1	0	0	0	0	0
7	0.1 0.2	—	+	—	—	0.5 1.0	—	—	—	—	4	—	—	0	0	0	0	0	0	0	0	0	0
8	0.1 0.2	—	—	—	—	0.25 0.5	—	—	—	—	3	—	—	0	0	0	0	0	0	0	0	0	0
9	0.1	—	—	—	—	0.25 0.5	—	—	—	—	2	—	—	0	0	0	0	0	0	0	0	0	0
10*	0.1	—	—	—	—	0.5 1.0	—	—	—	—	4?	+	+										
11	0.1	—	—	—	—	0.25	—	—	—	—	0	—	—	0	0	0	0	0	0	0	0	0	0
12	0.1	—	—	—	—	0.5	—	—	—	—	4	—	—	0	0	0	0	0	0	0	0	0	0
13	0.1	—	—	—	—	0.25	—	—	—	—	3	—	—	0	0	0	0	0	0	0	0	0	0

* Six antigens were used. No colloidal gold test was done in this case, in which there were a few erythrocytes in the spinal fluid.

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[5] Miller, S. R.; Brush, N. D.; Hammers, J. S., and Felton, L. D.: A Further Study of the Diagnostic Value of the Colloidal Gold Reaction, Together with a Method for the Preparation of the Reagent, Bull. Johns Hopkins Hosp., 1915, **26**, 391.

[6] Van der Bogert, Frank: Congenital Syphilis, Simulating Mongolism, in One of Twins, Am. Jour. Dis. Child., January, 1916, p. 55.

globulin, and the colloidal gold test. One spinal fluid containing erythrocytes was, of course, used only for the Wassermann reaction.

In preparing the gold solutions, great care was exercised, and only solutions which were clear to both transmitted and reflected light were used. Triply distilled water from a block tin condenser was used, and all glassware was cleaned as directed by Miller, Brush, Hammers and Felton.[5]

Family Histories.—1. We have succeeded in obtaining parental histories from all of the thirteen patients. In none of these was there a frank history of any syphilitc infection, or any subsequent symptoms or signs of syphilis. Had such evidence been obtained, we would have made special note of it, as we can appreciate the possibility of a coexisting mongolism and congenital syphilis. A summary of these histories is given in Tables 1 and 2.

2. The histories of all brothers and sisters, both living and dead, were obtained, and the causes of death were particularly inquired into. In no case could death be attributed to a syphilitic infection. In no family was more than one Mongolian encountered. This has been a common observation, although Babonneix and Villette[7] recently report four cases in one family. It seems more than likely that if mongolism were due to syphilis in the parents, the occurrence of more than one case in a family would be not infrequent. Details of these histories are given in Table 3.

Personal Histories.—The histories of the patients were carefully taken and can all be considered reliable. None of the usual manifestations of congenital syphilis could be found (Table 4).

The complete laboratory findings in all of our cases are given in Table 5. The serum Wassermann was negative in all cases. In Case 7, there was one + reaction with Antigen 2 (cholesterin antigen). The Wassermann reactions on the cerebrospinal fluids were consistently negative. No special fluid gave a cell count above four cells per cubic millimeter.

The globulin tests in Cases 5 and 6 were positive to the Pandy test, but negative to the Ross-Jones test, while Case 10, which contained a few red blood cells, gave a positive reaction to both.

The colloidal gold test was negative in every instance, and in only two cases did the reaction read as high as 2. It is needless to say that no test was done in Case 10, the spinal fluid in which contained a few red blood cells.

CONCLUSIONS

From careful anamneses, physical examinations and the laboratory tests now available, it cannot be stated at the present time that mongolism is due to congenital syphilis.

2500 East Thirty-Fifth Street.

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[7] Babonneix, L., and Villette, J.: Arch. de méd. d. enfants, 1916, **19**, 478.

Smoking Fresh Water Fish.—In 1915 the United States Bureau of Fisheries at Fairport, Mich., began experimenting with the smoking of fresh water fish. These experiments have yielded interesting results. The bowfin, or grindle, which has been regarded as practically worthless, has been found to yield a good product, when properly smoked, with excellent texture and flavor. Further experiments are being made to obtain a product of improved appearance and quality. The bowfin is abundant in the Great Lakes and in sluggish waters from Minnesota and New York to Florida and Texas. By this means another food product has been added to the general supply.

NOTE ON THE BACTERIOLOGY OF THE SPINAL FLUID IN POLIOMYELITIS AND SCARLET FEVER

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During the routine examination of a patient admitted to the contagious ward of the Cook County Hospital with a diagnosis of scarlet fever, a lumbar puncture was performed because of marked rigidity of the neck. The spinal fluid was under increased pressure, the cell count was 28, principally of lymphocytes, and the globulin tests were positive. The spinal fluid was inoculated into dextrose broth and dextrose agar, and a pure culture of a small gram-positive coccus was obtained within thirty-six hours. The organism exhibited both the cultural and the morphologic characteristics of the micrococcus described by Nuzum[1] as occurring in the cerebrospinal fluid in poliomyelitis. Repeated inoculations yielded pure cultures of the same micro-organism. From the nasal discharge a micrococcus was obtained resembling the organism in the spinal fluid. The organism from the nasal secretion was agglutinated by the antipoliomyelitic serum[2] in a dilution of 1:500; control organisms did not so agglutinate.

Clinically the case resembled the cerebral type of poliomyelitis, and the subsequent course of the disease made the admitting diagnosis quite doubtful. Later the child developed bronchopneumonia from which he died. The necropsy confirmed the diagnosis of poliomyelitis and bronchopneumonia. In another patient admitted with the diagnosis of poliomyelitis, the micrococcus was obtained both in direct smear and in culture.

The ease with which these organisms were obtained raised the question of contamination. Accordingly a study of the spinal fluid of the children in the contagious ward was undertaken. Lumbar punctures were performed in fifty patients having scarlet fever and associated exanthems, as diphtheria and varicella. The patients varied in age from 1 to 14 years, and were principally under 7. The children were in all stages of the disease, from the very onset with the acute rash and high fever to the convalescent period. The spinal fluid was inoculated in dextrose agar and dextrose broth with the same technic as in the previous cultures, and also into litmus milk, blood agar, ascites, glucose agar, aerobically and anaerobically by the pyrogallic acid and sodium hydroxid method described by Mallory and Medlar[3] in obtaining the *Bacillus scarlatinae* from the buccal cavity of patients with scarlet fever. All cultures were incubated for five days at 37 C. (98.6 F.). The cultures remained sterile, except for four tubes in which the *Bacillus subtilis* and *Staphylococcus albus* were obtained as contaminations. The pressure of the spinal fluid was found to vary with the mental and physical attitude of patients. In quiet children it flowed 30 to 60 drops a minute; in crying or restless patients it generally appeared to be under pressure. The cell count varied from 1 to 20 cells per millimeter. For the fifty patients it averaged 8 cells, but in eleven it varied from 10 to 20. Lymphocytes predominated from 80 to 90 per cent.

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[1] Nuzum, John W.: Bacteriologic Findings in Cerebrospinal Fluid in Poliomyelitis, The Journal A. M. A., Nov. 11, 1916, p. 1437.

[2] Nuzum, John W.: The Production of an Antipoliomyelitic Serum, The Journal A. M. A., Jan. 6, 1917, p. 24.

[3] Mallory, F. B., and Medlar, E. M.: The Etiology of Scarlet Fever, Jour. Med. Research, 1916, **35**, 209.

SUMMARY

The micrococcus described by Nuzum as occurring in the cerebrospinal fluid of poliomyelitis is not present in the cerebrospinal fluid of acute exanthems.

The pressure of the spinal fluid varies with certain physiologic states of the patient.

The average cell count of the cerebrospinal fluid in scarlet fever is 8 cells per cubic millimeter. Lymphocytes predominate.

ISOLATION OF THE TYPHOID BACILLUS FROM DUODENAL CONTENTS, OBTAINED BY EINHORN TUBE

F. M. Durham, M.D., Columbia, S. C.

J. P. M., man, was referred to Dr. S. E. Harmon by Dr. Mayer of Newberry, S. C., June 30, 1916, for gallbladder operation. Dr. Harmon and I examined the patient on the same day and made a diagnosis of gallbladder infection; but his condition was such that he was left in my care that he might be built up and that a more thorough diagnosis might be worked out.

The patient gave a history of having previously and recently undergone a serious illness of several weeks and of having been in declining health for several years. The temperature was of the irregular nature, usually characterizing chronic gallbladder infection, ranging from 98.6 to 100.5 F., and once going to 101.4. It was normal, however, the greater part of the time. The pulse usually remained in the eighties. The urine contained some albumin, and hyaline and granular casts, but cleared up after a few days' rest. The temperature and pulse remained good, but the patient's facial expression showed that he was below normal in resistance. I, therefore, advised against an operation, for in my opinion this man was evidently afflicted with something more serious than a mild gallbladder infection.

July 5, 1916, I sent a specimen of blood for a Widal test to a laboratory, and a positive paratyphoid test was reported.

On receipt of this report, the patient was given no food except a very light dinner, three hours after which he was encouraged to drink water at frequent intervals in order to get the stomach and duodenum clean. That night at 9 o'clock I inserted an Einhorn duodenal tube, fastening the part remaining out of his mouth to his night shirt. At 7 the following morning I aspirated the contents of the duodenum, and to my surprise obtained about 2 ounces of as pure looking bile as I ever saw, which was absolutely free from food. I sent this bile to the state board of health laboratory, requesting a culture for *Bacillus typhosus*. July 15, Mr. J. R. Cain, assistant bacteriologist, reported that the specimen contained a pure culture of typhoid bacilli.

Dr. F. A. Coward, director of the state board of health laboratory, reported that the bile was cultured directly in bouillon and on agar. In twenty-four hours pure cultures of a motile bacillus were obtained. This bacillus, which was gram negative, grew readily, and was agglutinated by serum from a patient with typhoid fever. An agar culture of the organism had been prepared, and was being kept at the laboratory for further study.

The patient was discharged, July 18, with a normal temperature, and promising to return within a few weeks for an abdominal exploration. I am informed that he was operated on out of Columbia about the latter part of October and died. The report of the operation was to the effect that the whole abdominal contents were so engorged, adhered and friable that the surgeon closed the incision without completing the operation.

This man was a typhoid carrier, and to the best of my knowledge and information this is the first time that duodenal contents, secured by the use of the duodenal tube, ever gave a positive *Bacillus typhosus* culture. I am fully convinced of the importance of a duodenal culture made from duodenal contents which have been secured by the use of a duodenal tube as a means of diagnosing typhoid carriers and obscure cases of typhoid fever.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 713*)

TREATMENT OF MERCURIC CHLORID POISONING

The first symptoms of mercuric chlorid poisoning are epigastric pain, nausea and vomiting, the vomitus sometimes containing more or less blood. The gastric symptoms may be almost entirely relieved by proper treatment, the success of which depends on the length of time between the ingestion of the poison and the treatment, and on whether the stomach was full or empty when the poison reached it. Diarrhea and signs of duodenal inflammation occur within a few hours, unless the poison was quickly vomited. If much mercury has been absorbed, stomatitis occurs on the second day.

If a tangible amount of mercury has been absorbed, there is soon a gradual diminution in the amount of urine passed, and after the first or second day there may be complete suppression. As noted in other acute metallic poisonings, total suppression of urine may not cause convulsions, as it ordinarily does in uremia, probably because some of the detoxicating functions of the kidneys may still be operative. After several days, delirium may occur, followed by coma, while the heart shows gradual failure.

If acute nephritis does not cause death, ulcerative colitis with hemorrhages from the bowels may prove fatal, even after a lapse of several weeks.

The following treatment of mercuric chlorid poisoning is founded on the therapeutic results and laboratory findings of Lambert and Patterson[91] and of Fantus.[92] It is best immediately to examine the first material expelled from the stomach either by vomiting or by lavage, and to examine the urine for mercury, as the patient may not have taken mercuric chlorid, as he imagines. The patient is first given the whites of several eggs; the stomach is then washed out. He is then given a pint of egg albumin water, and the stomach again washed out.

According to Fantus, a tablet composed of sodium phosphite, 0.36 gm., and sodium acetate, 0.24 gm., should be dissolved and administered as soon as possible. If this drug cannot be obtained, the following solution should be substituted: sodium hypophosphite, 1 gm.; water, 10 c.c.; hydrogen peroxid solution, 5 c.c. If the amount of poison swallowed is known, ten times that amount of hypophosphite should be given. As this dosage of hypophosphite might be large, it should immediately be followed by lavage with warm water and a greatly diluted solution of the antidote. This may be followed by a safe dose of antidote, which may be repeated every eight hours for several days. A glass of egg albumin water should also be imbibed every alternate hour until several doses have been taken. Since it has been shown that milk is worthless as an antidote, there seems to be no necessity for using milk, which curdles and causes acid. As a demulcent, starch water, slippery elm or flaxseed tea may be used. A gram of sodium acetate, dissolved in sweetened water, should be taken every three hours, for a day or two, being omitted at such times as it comes in conflict with the antidote.

Lambert and Patterson's recommendation of rectal irrigation is important. They use the drop method of rectal irrigation, with a solution of potassium acetate, 4 gm. (a dram) to the pint. It might be well to substitute sodium acetate for the potassium acetate, as in all poisoning and in all serious conditions, sodium salts are safer than potassium salts, as this solution is more or less rapidly absorbed and generally causes diuresis. The colon should also be thoroughly irrigated twice daily to remove whatever mercury may have been there deposited or which may have reached the colon through the bowels. As there occurs a resecretion of mercury into the stomach, it should be washed out twice daily during the first few days unless the patient vomits repeatedly when given warm water. Lambert and Patterson affirm that it is advisable to continue the colonic drip enteroclysis day and night, at short intervals, even though it is intensely disagreeable to the patient, until two examinations of the urine on successive days have given a negative test for mercury. They also assert that if excessive doses of mercuric chlorid have been absorbed, or if the kidneys were previously diseased, the treatment should continue for a longer period, as long as three weeks, if necessary.

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[91] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

[92] Fantus, Bernard: Jour. Lab. and Clin. Med., 1916, **1**, 879.

If the kidneys have become seriously involved and suppression is present when a patient first comes under observation, the prognosis, although very serious, is not hopeless. Lambert and Patterson advise a daily sweat in a hot pack. This treatment, and also frequently repeated stomach washings, depends on the condition of the circulation — if the heart is weak and the circulation poor, the hot pack may be inadvisable.

(To be continued)

WAR WOUNDS AND SHOCK

The phenomena of surgical and traumatic shock are familiar to the practitioner. They are difficult to combat by any of the routine methods ordinarily applied in emergency practice. Laboratory investigators have long been busied with the study of experimentally produced shock. They are agreed that the cardinal symptom in this condition is a profound fall in blood pressure, as the result of which the individual suffering from shock is liable to "bleed to death into his own veins" unless some effective remedial procedure is instituted. When one approaches the question of the causes underlying the manifestations which characterize shock, there is no unanimity of opinion.

When the development of shock is carefully investigated, it is apparent that the fall of arterial pressure is caused by a diminution in the output of the heart. The fall is not due to abolition of the peripheral resistance in the arterial system. Henderson and others have pointed out that no inhibition or fatigue, or failure of any sort, occurs in the vasomotor nervous system. On the contrary, this mechanism is intensely active in an effort to compensate the lessened blood stream. Nor is the heart itself weakened. When the pressure in the venous system is observed, it becomes evident that the apparent cardiac failure is the result of diminution of the pressure and volume of the venous stream to the right heart. The etiologic sequence, in certain forms of shock at least, appears to be: venous stasis, cardiac failure, and fall of arterial pressure.

Traumatic shock has played a prominent part in the management of the wounded in the present European war as in previous conflicts. It is confidently stated by W. T. Porter that the number of wounded who suffer from low arterial pressure is large, much larger than most surgeons believe. Thousands have died from shock, and a remedy is urgently needed. Here we must turn to the beneficent results of experimentation on animals for our main hope of preventing or curing shock. Porter's observations, like those of others, have shown that when the diastolic pressure remains some time at from 45 to 50 mm. it will not recover without aid. Unless proper remedies are employed, the animal dies of shock. A diastolic pressure of 50 mm., therefore, is, as he expresses it, "critical." When the diastolic pressure falls to 50 mm., the blood accumulates in the abdomen. The animal then bleeds to death into its own portal vein. The remedies successful against this impending catastrophe are gravitation, and the raising of blood pressure by the injection of physiologic sodium chlorid solution or of epinephrin.

Commissioned by one of the American research foundations to investigate the problem of shock in freshly wounded soldiers at the front, Porter[1] of the Harvard Medical School determined to ascertain whether the phenomena of low blood pressure in wounded men are essentially those observed experimentally in laboratory animals. The question was naturally raised as to whether life in the trenches of itself lowers the arterial pressure or predisposes the soldier to a failure of the pressure after he is wounded. Porter's observations, conducted under exceptionally favorable conditions for ascertaining the effect of the severest types of mental and physical hardship in warfare, do not support the view that soldiers under fire suffer from low arterial pressure. He points out that a soldier soon gets accustomed to being under fire, and must not be judged from the standpoint of a civilian. Indeed, one would be led to expect perhaps that excitement would raise the blood pressure rather than lower it. A storm of large shells is not an indifferent matter, however, even when the emotions are restrained. The air pressure from their explosion produces violent reactions. Paralysis, low blood pressures, and other injuries may be thus produced in men who have no visible wound. The treatment of this condition does not differ from that following wounds, but the prognosis is said by Porter to be probably less favorable.

The newest observations of Porter on the wounded men at the front demonstrate that "there is no essential difference between the low pressure of men and that of other animals." The remedies successful against low pressure in animals are also successful against low pressure in human beings. The outcome of this conclusion has been a series of rules applicable in cases in which shock associated with a diastolic pressure of 60 mm. or less exists. To avert the accumulation of blood in the portal system, with consequent impairment of the activity of the heart and of the nutrition of the nerve cells, there are advised: (1) a special position of the wounded, so that the abdominal vessels shall be higher than the heart and brain; (2) heat; (3) intravenous injections of saline solution; (4) intravenous injections of epinephrin; (5) the transfusion of blood, in certain cases, and (6) the observation of the diastolic pressure every half hour as an index of the condition of the patient. The application of some of these procedures is reported to have produced gratifying results. The advantages which they afford obviously need not be restricted to the surgical exigencies of war.

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[1] Porter, W. T.: Shock at the Front, Boston Med. and Surg. Jour., 1916, 175, 854.

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SATURDAY, MARCH 10, 1917

THE RELATION OF THE MOTHER TO SOME DIETARY FACTORS IN MILK

More than twenty-five years ago, Hirota observed an acute or subacute disease with a clinical picture of generalized edema, dyspnea, gastro-intestinal derangement, cardiac disturbance, and oliguria affecting infants who are nursing mothers suffering from beriberi. Although it was generally supposed before Hirota published his observations on these infants, in 1898, that beriberi did not affect nurslings, the existence of a characteristic infantile beriberi is now clearly recognized.[1] Like the comparable disease of adults, it is reported to be found in the East only rarely among the well-to-do native families who are able to purchase a varied and proper diet. The conclusion seems well founded today that infantile beriberi is due to a deficiency of some essential substance in the milk of the mother. Sufficient analyses of such milk have been made, however, in the case of mothers whose nursing infants have died from infantile beriberi, to show that the lacking factor in the diet cannot be a deficiency in proteins, inorganic salts or even fat; and as the infantile malady can be cured, precisely like the adult type, by administration of an extract of rice polishings, it seems logical to conclude in the light of present knowledge[2] that the two are caused by a deficiency of the same so-called vitamins.

The foregoing facts raise the question whether or not substances which are indispensable components of any adequate diet during growth can normally be formed by the maternal organism in connection with secretion. In many respects the mammary function appears to be more or less independent of the food supply to the lactating individual. Cows continue to produce milk of the usual composition, so far as the usual familiar nutrients are concerned, even when the fodder they receive is not adequate. When the constructive units of the ration do not meet the needs of the functioning mammary cells, they draw on the rest of the body so that the milk proteins, if they are produced at all, are characteristic. So long as the body stores can be drawn on, the secretion of an apparently normal milk continues even when the animal is losing body weight and becomes depleted in its protein reserve.[3] These facts correspond, as has been pointed out,[4] with the observation of Decaisne[5] during the siege of Paris that, even during fasting or partial fasting, vigorous young women were able to keep up a flow of milk sufficient to induce some growth in their infants.

Can the unidentified dietary factors, popularly called vitamins, be similarly furnished by the maternal organism even when they are wanting in the diet of the lactating mother? The prevalence of infantile beriberi among children whose mothers' diet is insufficient to prevent this disease speaks against the probability of a ready maternal synthesis of vitamins. McCollum and his collaborators,[4] who have raised this question anew, point to the remaining possibility that the diet of these mothers, which is restricted as to source and variety, and is of poor quality, may be inadequate with respect to the preventive substance itself and also as to its content of a possible precursor from which it might be formed through the peculiar property of a special organ, in a manner analogous to the formation of the various hormones of internal origin.

The antineuritic vitamin which prevents the occurrence of beriberi is not the only unidentified dietary factor essential for adequate growth. Another of these apparently indispensable food hormones is found in some of the natural fats, notably milk fat and egg yolk fat, the need of which has been so clearly emphasized by McCollum, Osborne and Mendel. McCollum prefers to avoid implications of the as yet unknown chemical nature of these various determinants of growth by speaking of the fat-soluble A and water-soluble B. Both of these are represented in milk. The latter seems to be responsible for its antineuritic properties; both must be furnished if growth is to proceed normally.

At the Wisconsin Experiment Station in Madison, experiments have been undertaken to ascertain the ability of normal female animals to suckle their young when confined to a diet which is known to be adequate for growth when satisfactory amounts of the unidentified A and B are added, and inadequate for growth when either of these factors is omitted. The paucity of such a diet in possible precursors is hardly to be expected, and the results should enable us to decide whether or not these two essential substances pass into the milk only when they are furnished in the diet.[4] From the careful studies reported it seems necessary to conclude, with the investigators, that the two constituents of the diet just discussed pass into the milk only as they are present in the diet of the mother, and that milks vary in their growth-promoting power when the diets of the lactating animals differ widely in their satisfactoriness for the growth of young. It seems further justifiable to conclude that the chemical natures of the fat-soluble A and the water-soluble B, whether these represent in each case a single substance or a group of substances, are of such character that they cannot be formed within the animal body from any of the cleavage products of proteins.

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[1] Vedder, E. B.: Beriberi, New York, 1913, Chapter XII.

[2] Vedder, E. B.: The Relation of Diet to Beriberi and the Present Status of our Knowledge of the Vitamins, The Journal A. M. A., Nov. 18, 1916, p. 1494.

[3] The Relation of Proteins to Milk Production, editorial, The Journal A. M. A., Nov. 4, 1916, p. 1374; Some Factors in Milk Production, Feb. 3, 1917, p. 374.

[4] McCollum, E. V.: Simonds, N., and Pitz, W.: The Relation of the Unidentified Dietary Factors, the Fat-Soluble A, and Water-Soluble B, of the Diet to the Growth-Promoting Properties of Milk, Jour. Biol. Chem., 1916, **27**, 33.

[5] Decaisne, E.: Gaz. méd. de Paris, 1871, p. 317.

More than ever before the progress of scientific investigation points to the importance and, indeed, the absolute necessity, of a suitable dietary for the nursing mother. The greatly superior chance of the naturally fed infant to survive in contrast with its artificially fed brother is everywhere admitted. The advisability of breast feeding being thus assumed, it becomes necessary to fortify the woman of today against the possible detriment which changes in the food customs and the necessities of the times altering the previously usual dietary may bring with them in respect to the subtle qualities of human milk. The experience of the Filipino mother who has subsisted on polished rice should carry its warning to those responsible for the nutrition of the mothers of our own country. Unnatural conditions of life must not be allowed to produce detrimental effects which can be discovered only in the subsequent nutrition of the young.

THE NECROPSY SITUATION IN THE UNITED STATES

Every thoughtful physician recognizes the importance of necropsies for the progress of medicine. The necropsy serves as a mode of instruction: it helps to eliminate error, and enables a rational institution of treatment when subsequent circumstances call for them. The education of the medical profession by accurate postmortem diagnoses is a veritable safeguard for the public welfare. This is axiomatic. Again, the successful institution of a greater number of necropsy records will serve to correct the inaccuracies of present-day vital statistics. It is admittedly a drawback to the intelligent conservation of our vital resources to find, as every student of modern sanitation promptly does, that it is impossible at present to have the exact sanitary or insanitary index to conditions in many parts of the country because of the blatant inadequacies of the death records.

The knowledge gained through the postmortem examinations of the past is permanent; but there is still abundant opportunity for such anatomic findings to help in the solution of the problems arising almost every day in relation to the obscure symptoms of disease. Thus M. C. Winternitz[1] reminds us that the most accurate knowledge we have of the scourge of the present day, infantile paralysis, is its pathologic anatomy. Without the necropsy, the diagnosis even of this disease often cannot be attained. From the anatomic picture the clinical manifestations of the disease are readily understood, and by this means its successful transmission to animals has been verified. Its histology, comparable to that of other infectious diseases, will aid in establishing its etiology, and ultimately may help in unraveling its portal of entry and dissemination in the body. Physicians who have been taught to think anatomically must be given an opportunity to enlarge their experience. It is not sufficient, says Winternitz, that postmortems are carried on in large numbers in Europe—they must be performed everywhere if the health of the public is to be safeguarded.

The unsatisfactory situation in the United States was particularly emphasized by a report of the New York Academy of Medicine published four years ago.[2] It developed that the ratio of necropsies to deaths ranged above 25 per cent. in only four of seventeen large hospitals in this country, in contrast with the decidedly higher postmortem statistics in European public hospitals of a similar status. The evidence that some improvement is beginning to manifest itself here was reviewed a few months ago in The Journal.[3] A new compilation has been attempted by Winternitz[1] through a questionnaire sent to a number of representative American hospitals for records to include the year 1916. In nineteen of the twenty-one hospitals included in the investigation there has been no notable change in either the total number or percentage of necropsies during the past six years. If, however, the ratio of necropsies to the number of deaths for any year — say, 1915 — is compared with similar data from the report of the New York Academy of Medicine, the result is surprising, especially if the twenty-one hospitals included in this investigation are supplemented by the Robert Bent Brigham Hospital, Boston, the Johns Hopkins Hospital, and city hospitals, Bay View, Baltimore, for the same year. Winternitz says that while there are still a large number of hospitals with a small percentage of necropsies, nevertheless it is evident that there is an increasing group of institutions in which the percentage of necropsies is high. Perhaps the selection of hospitals was fortuitous, and probably further investigation of many more institutions would yield a still different result.

Undoubtedly the problem of presenting a convincing argument in seeking permission for conducting necropsies is worthy of careful study. The "stock arguments" as they appeal to the average hospital superintendent have been thus epitomized: the importance of the necropsy in determining the true cause of death;

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[1] Autopsies — Their Value, Methods of Obtaining, and Protection of the Hospital, Mod. Hosp., 1917, 8, 36.

[2] Report on Post-Mortem Examinations in the United States by Public Health, Hospital and Budget Committee of the New York Academy of Medicine, The Journal A. M. A., June 7, 1913, p. 1784.

[3] Recent Necropsy Records in the United States, editorial, The Journal A. M. A., May 27, 1916, p. 1706.

the benefit derived from this knowledge by the family, by the hospital, by the science of medicine and humanity, and the aid of the exact cause of death as revealed by the necropsy in the settlement of insurance claims.

THE VENEREAL DISEASE PROBLEM—VI

The Present Attacks on the Problem

In recent numbers of The Journal[1] we have reviewed briefly some of the important efforts which are now being made to control the venereal diseases. The English and German efforts are most important, because of their extent and because of the expert knowledge behind them. That of Western Australia, while affecting only a sparsely populated province, is of great interest, because here is the first legal effort in an Anglo-Saxon community which is thorough and complete in its provisions.

All agree on the sanitary importance of the provision by the state of universal opportunity for prompt diagnosis and treatment. This is the sanitary measure on which reliance is placed in attacking the diseases. It is recognized that legal provisions, to be completely effective, should compel patients, if necessary, to continue treatment until cured. England and Germany, except in districts under military control, have not yet seen their way to enforce this requirement. Western Australia has taken the signal step of providing this requirement under stringent penalties. In Germany this step has strong advocates.

The requirement of notification of venereal diseases is not included among the measures which have been put into legal force. The British Royal Commission on Venereal Diseases believed that notification is a step which may perhaps come later, but was opposed to it in the present state of opinion, and the English Local Government Board in putting into effect its vast scheme for taking care of the venereal diseases made no provision for notification. In Germany no comprehensive scheme of notification is provided, and there is strong opposition to it. Even Western Aus-
tralia with its thorough measure does not require or
plete notification, so long as patients live ents of
provisions of the law. ormally be

In Germany there is an extensiv nnection with
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Competent opinion evidently holds t t the needs of
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they are pro-

Saxon communities against the venereal diseases, and that is the therapeutic attack on them. The second measure on which reliance is placed is personal prophylaxis. In these two measures lie the prospects, and apparently the only prospects, of controlling the venereal diseases.

There is a good omen in the widespread agitation which now exists for the control of the venereal diseases. The interest in the subject has permeated the general population to the point at which those who are competent to lead in this field can rely on a large measure of popular support. With increasing general intelligence on the subject there is little doubt that the time is not far distant when effective measures for attacking these diseases will be enacted in many intelligent states and receive the support of popular sentiment. When that time arrives we may look with considerable assurance to a successful sanitary attack on these diseases — a success which will be the more notable because it has not been attained in any efforts which man has yet made. It need hardly be said that the menace of the venereal diseases justifies beyond all measure the extensive efforts by the state which its control would require; for the venereal diseases rank with tuberculosis and malaria as the great chronic plagues of man.

WHAT CONDITIONS DETERMINE THE EXCRETION OF CREATIN?

Although creatin, one of the most characte
nitrogenous components of muscle, is regularly f
in the urine of children, it is rarely found in th
adults except under unusual circumstances. Cr
appears along with creatinin during inanition; it
been observed in carbohydrate hunger and likewi
diabetes, the pathologic experiment in specific s
starvation so frequently provided by Nature. Me
and Rose, as well as many others,[1] have acco
related creatinuria, in adults at
version of carb xperiment Station in Madison,
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ity of normal female animals to suckle their young
when confined to a diet which is known to be adequate for growth when satisfactory amounts of the unidentified A and B are added, and inadequate for growth when either of these factors is omitted. The paucity of such a diet in possible precursors is hardly to be expected, and the results should enable us to decide whether or not these two essential substances pass into the milk only when they are furnished in the diet.[4] From the careful studies reported it seems necessary to conclude, with the investigators, that the two constituents of the diet just discussed pass into the milk

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[1] The Venereal Disease Problem, I, edit
A. M. A., Feb. 3, 1917, p. 375; II, Recommen pter XII.
Royal Commission on Venereal Diseases, Feb. 1 and the Present
The English Venereal Disease Act, Feb. 17, 1917, RNAL A. M. A.,
Australia's Effort to Control the Venereal Disease
639; V, The Problem in Germany, March 3, 1917,

[3] The Relation of Proteins to Milk Production, editorial, The Journal A. M. A., Nov. 4, 1916, p. 1374; Some Factors in Milk Production, Feb. 3, 1917, p. 374.

[4] McCollum, E. V.: Simonds, N., and Pitz, W.: The Relation of the Unidentified Dietary Factors, the Fat-Soluble A, and Water-Soluble B, of the Diet to the Growth-Promoting Properties of Milk, Jour. Biol. Chem., 1916, 27, 33.

[5] Decaisne, E.: Gaz. méd. de Paris, 1871, p. 317.

which there is creatin in the urine is accompanied by some form of acidosis.

In experiments on rabbits, which ordinarily excrete an alkaline urine, Underhill found that, on a diet of oats and corn containing an adequate supply of carbohydrate, creatin promptly appears in the urine. A marked condition of acidosis, as measured by the hydrogen ion concentration of the urine, is always associated with this phenomenon. Oats and corn are pronounced acid-producing foods. On the other hand, if a base-producing food, such as carrots, is fed to rabbits with creatinuria, this symptom rapidly disappears as the urine becomes alkaline. The protein per se is without special significance in the phenomenon under discussion; for on a diet consisting of oats, corn and carrots, creatin fails to appear in the urine, and the reaction of the latter remains alkaline. Equally significant is the further fact that the ingestion of hydrochloric acid with the mixed diet causes the appearance in the urine of significant quantities of creatin. Simultaneously the hydrogen ion concentration of the urine is markedly increased.

Underhill's conclusion that there is an interrelationship between acidosis, in the sense of base depletion, and the elimination of creatin by the organism, so that the urinary output of creatin may prove to be an index of the disturbance in acid-base equilibrium, has been substantiated by him in other ways.[3] Administration of alkali during the earlier days of starvation may greatly diminish or completely abolish the creatinuria of that condition; though later in the period of inanition, introduction of alkali may not show as marked an influence on the existing creatinuria.

A close relationship between the blood sugar content and the acid-base equilibrium in the body has also been demonstrated. Hypoglycemia and alkalosis often appear to go together. In some of the experimental glycosurias, on the other hand, the administration of large amounts of alkali has been without appreciable influence on the elimination of creatin. Although creatin may find its way into the urine, of the rabbit at least, under circumstances which exclude the possibility of carbohydrate deficiency, alkali depletion cannot be the sole stimulus for the production of creatin.

One is thus forced, with Underhill, to the conclusion that more than a single factor may govern the mechanism of the reactions leading to creatinuria. He is inclined to believe that the urinary elimination of creatin may be induced by at least two different sets of conditions: (1) Creatin may appear in the urine in states of acidosis in which carbohydrate deficiency is not involved, and (2) creatinuria may be present during carbohydrate deficiency even in the absence of acidosis. In view of the present interest in the creatin-creatinin problems, the newest hypotheses which carry some experimental support deserve critical consideration.

Current Comment

ANOTHER SHORTAGE OF SALVARSAN

The indications are that the supply of salvarsan and neosalvarsan in this country has again reached the point of exhaustion. To the medical profession, who know the unfortunate results of a shortage of salvarsan on the health of the present and future generations, the situation is an exasperating one. Is there no remedy? Is our government impotent to relieve the condition? Congress made our patent law; it certainly has the power to suspend the patent on any preparation that the patentee is unable to, or does not, supply when such suspension is in the interest of public health. It is well known that at the time of the previous shortage the Dermatologic Research Laboratory of Philadelphia manufactured the product under the name of arsenobenzol.[1] It is presumed — at least hoped — that in the present shortage the laboratory will again manufacture the product. It should meet with no legal difficulty, as the agents for the salvarsan manufacturers have intimated that they would not object to such supply of the product at times when they themselves were not able to furnish it. But such a relief for the situation is not a permanent relief — it is a makeshift. Monopolies on medicaments such as diphtheria antitoxin, salvarsan and the like are against public interest. The United States has granted process and product patents on salvarsan: even if any one in this country produced a salvarsan product or derivative which would be more curative and more valuable — on account of being less toxic, for instance — the patentees could effectually prevent its manufacture and sale. Again it should be emphasized that the fact that a most important drug is unavailable is the result of an act of Congress, and Congress has the power to modify its action so that the remedy may be made available.

THE BLOOD PRESSURE OF FILIPINOS

If the statistics of measurements relating to blood pressure and the kinetic energy of the circulating medium are to become of use to clinicians and to life or health insurance companies as indexes of normal or abnormal functioning on the part of the organism, they must not only be based on accuracy but must also take into consideration such factors as race or climatic environment which might produce variations in physiologic performance. There is an interest, therefore, in the recent studies on the blood pressure factors of the Filipinos by I. Concepción and E. Bulatao[2] of the College of Medicine in the University of the Philippines. Although the systolic pressures had been measured by previous investigators[3] in our insular possessions in the Far East, the other equally essential factors of diastolic pressure and pulse pressure had not been determined for any large number of Filipinos. Examined with the Erlanger sphygmomanometer, 717 persons with an average age of 28.5 years showed average systolic pressures of 115.5 mm. of mercury in males and 116 in females, average diastolic pressures of 79 and 83 mm., and average pulse pressures of 36 and 33 mm. There is a general rise of all these factors with age; but the Filipino investigators assert on the basis of their observations that hypertension is not a necessary accompaniment of old age. Average data are always liable to harbor unsuspected yet significant variables. For this reason it may be noted that in 76 per cent. of the Filipino subjects carefully examined the systolic pressure ranged from 100 to 140 mm. The statistics, when compared at different ranges of age, are much lower than those reported for Europeans or Americans living in temperate climates, but appear to correspond with what Americans living in the tropics exhibit. The pulse rate in the tropics — still a debated question — was observed in the Filipino to average a few beats above the usual standard of 72 a minute. An acceptable explanation of the lower blood pressure found in the tropics is not forthcoming at present. It has been ascribed to a dilatation of the peripheral blood vessels as well as increased elasticity of the vessel walls. Another view has associated it with an assumed low peripheral resistance attributable to the increased secretory function of the sweat glands, or with the possibility of splanchnic influences originating in the "prevalent sensation of abdominal vacuity" and the frequency of gastro-intestinal disturbances. It would not be without interest to ascertain a more defensible cause of the phenomenon in question, now that the fact of lower pressures in the Filipinos has become established by more abundant statistics.

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[3] Underhill, F. P., and Baumann, E. J.: Studies in Creatine Metabolism, III, The Influence of Alkali upon the Creatinuria of Phlorhizin Glycosuria, Jour. Biol. Chem., 1916, **27**. 147; IV, The Relationship of Creatinuria to Carbohydrate Metabolism and Acidosis, ibid., p. 151. Underhill, F. P., and Bogert, L. J.: Alterations in the Output of Certain Urinary Constituents as Determined by Changes in the Character of the Diet, ibid., p. 161.

[1] A Canadian product, diarsenol, was also, and for that matter, is still available.

[2] Blood Pressure Picture of the Filipinos, Philippine Jour. Sc., Sec. B., Trop. Med., 1916, **11**, 135.

"BONE DRY" BUT STILL MOIST

News items appeared in the Eastern papers recently of which the following, from the Baltimore *Sun* of February 24 is a specimen:

> "Danville, Va., Feb. 23.—So great has become the demand here for a certain proprietary medicine which contains 25 per cent. alcohol, that the city Police Department has laid the condition before the Prohibition Commissioner. An investigation has just led to the discovery that during Saturday and Sunday more than 700 bottles were sold in Danville and Schoolfield.
>
> "The police had to deal with more drunkards this week than during the entire month of January and each man admitted that he became intoxicated on the medicine."

The Journal telegraphed to the chief of police of Danville, Va., asking for the name of the proprietary medicine containing 25 per cent. alcohol which was reported to be responsible for several cases of intoxication. The laconic but all-sufficient reply from the Danville chief of police was: "Name medicine Hostetter's Bitters." It is surely more than a coincidence that the alcohol-containing "patent medicines" seem to be most widely advertised and most popular in those parts of the country which are commonly designated as "dry." It is a pity that there are no statistics to show the change in the volume of sales of "patent medicine" "tonics" that follow the enactment of prohibition laws. Far be it from The Journal to deprecate the spread of prohibition. So long, however, as individuals can sell, unrestrictedly, preparations containing small amounts of plant extractives in alcohol one-half the strength of raw whisky under the guise of "tonics," prohibition will not have the terrors for certain persons it might otherwise possess. In view of the new "bone dry" law recently enacted it would seem that now is a good time for the Internal Revenue Department to turn its attention to a class of remedies that might bring to the government considerable revenue — the alcoholic "patent medicines."

INANITION, KETONURIA AND ACIDOSIS IN CHILDHOOD

It has been customary among clinicians to associate certain symptoms, including nausea, vomiting, flushing of the cheeks, rise of temperature and hyperpnea, which are observed during childhood, with acidosis. A notable urinary output of acetone and related compounds has usually been selected as a chemical index of this condition. It would be more appropriate to speak of a ketosis as underlying the features referred to, for acidosis and ketonuria are no longer to be regarded as synonymous terms. Ketonuria represents a form of acidosis distinguished by the excessive formation of so-called acetone bodies — acetone, diacetic acid and beta-hydroxybutyric acid. A faulty metabolism of fats may underlie the pathology of this phenomenon. It has long been known that acetone bodies frequently appear in the urine of fasting persons, as well as in the urine of those with certain febrile and toxic conditions, particularly diabetes. To what extent, then, does the acetone body acidosis of childhood represent an inanition factor? Veeder and Johnston[1] have lately called attention to the lack of information on this subject, which is of particular interest to the pediatrician. As they point out, despite the infrequency of diabetes at this period, acetonuria is common in childhood, and is often associated with narcosis, cyclic vomiting and many febrile and toxic conditions. In all of these clinical conditions there is the possibility that inanition may be a factor to a greater or less degree. But the actual rôle played by inanition is uncertain, for persistent fasting in some cases of diabetes seems to decrease the degree of acidosis. Veeder and Johnston have accordingly observed children before, during and after a twenty-four or forty-eight hour period of inanition. They found under the circumstances that the total quantity of acetone bodies in the urine during short inanition periods varies directly with the duration of the inanition. They also found, as did previous observers, that the amount of beta-hydroxybutyric acid in terms of acetone) eliminated was as a rule from vo to four times as great as the quantity of combined etone and diacetic acid. In extreme instances there as a slight actual increase or percentage increase in ie ammonia elimination on the first day of inanition; ut this was rare. On the second day of inanition, owever, a marked increase took place. Although the iildren were closely watched for the development of inical symptoms, particularly those which are so fre- ently regarded as signs of an acetone body acidosis childhood, not one seemed to be affected in any way the inanition. The St. Louis pediatricians, there- re, are unwilling to believe that the formation of ace- ne bodies per se, at least in the amounts produced inanition, can be the fundamental cause of the mptoms in children so often regarded as due to idosis.

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[3] Musgrave and Sison: Philippine Jour. Sc., B., 1910, 5, 313. Chamberlain, W. P.: Ibid., 1911, 6, 467.

[1] Veeder, B. S., and Johnston, M. R.: The Factor of Inanition in the Development of Acetonuria in Children, Am. Jour. Dis. Child., January, 1917, p. 89.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

Iome for Drug Users Approved.—A bill to establish a state ne for drug users passed its second reading in the senate, oruary 15.

Vew Officers.—The Denver County Medical Society: presi- it, Dr. Samuel B. Childs; vice president, Dr. Charles D. vak, and secretary, Dr. R. Gilchrist Smith, all of Denver.

yphus Fever.—Typhus fever has been discovered at La ita which is believed to have been brought into the state Mexican laborers of the Santa Fe System. The patients e been isolated and are well on the road to recovery.

o Bar Physicians with Tuberculosis.—A bill has been oduced in the house of representatives by Representative e which provides that every practicing physician in the e shall submit to physical examination within a year after passage of a bill, and that if found to be afflicted with any tagious disease, he shall be barred from practicing until mination proves that he is free from it. The bill also vides that the board of examiners make examination of sicians in the state every two years.

ersonal.—Dr. Ward T. Burdick, city pathologist of Denver, resigned to take effect, February 15.——Dr. Frank G. Klveen has been elected president, Dr. Frank M. McCart- , vice president, and Dr. William F. Matson, secretary, he staff of St. Anthony's Hospital, Denver.——Dr. Will Runyon, Colorado Springs, has been appointed medical ctor of the Woodbury County Tuberculosis Sanatorium, ıx City, Iowa.——Dr. Erlo E. Kennedy, Basalt, has been ted chief clerk of the house of representatives.

FLORIDA

clectic Board Declared Vacant.—Reports state that on ch 2 Governor Catts of Florida declared vacant the State rd of Eclectic Medical Examiners. The grounds stated he reports are that the board was giving fake doctors omas and licenses from extinct colleges for $300 to $500. as also stated that several deaths had occurred from mal- tice on the part of the men so licensed. The men reported iembers of the eclectic board were Drs. George L. Dicker- Jacksonville; Frank E. Gavlas, Lake Worth, and V. K. ra, Tampa. It is stated that as a result of a suit brought nst him Dr. Jindra has become a fugitive from justice.

ILLINOIS

ıgenic Marriage Bill Lost.—By an almost unanimous vote enate on February 28 struck out the enacting clause of the bill backed by the Eugenic Education Society and introduced by Senator Austin of Oak Park.

Personal.—Dr. Rufus H. Main, Barry, was kicked by a horse, February 24, and seriously injured.——Dr. Frank W. Palmer, Chatsworth, sustained a fracture of a rib and concussion of the brain by the overturning of his automobile, February 22.

Consolidation Bill Passes.—Governor Lowden's consolidation bill, reorganizing the administrative department of the state government, has passed both houses of the legislature and become a law. The conference report was adopted unanimously by the senate and by a vote of 131 to 2 in the house. The bill abolishes or combines about 130 boards, bureaus and other separate governing agencies into nine departments, each under a director. The directors of the boards of finance, trade and commerce, and public welfare are to receive an annual salary of $7,000; the directors of the departments of agriculture and public health, a salary of $6,000, and the directors of the departments of education and registration, labor, and mines and minerals, $5,000 each. From a public health standpoint, the most radical changes are the creation of a department of health with a commissioner in place of the state board of health, and the consolidation of the work of examining and registering physicians, dentists, pharmacists, nurses, osteopaths, optometrists, drugless healers and all other registered professions under a department of education and registration, which will be conducted as a part of the educational machinery of the state.

Chicago

The Scarlet Fever Situation.—March 5, there were 1,900 cases of scarlet fever in Chicago, of which 118 were reported in the last two days of the week.

Vaughan in Chicago.—Dr. Victor C. Vaughan, dean of the University of Michigan, lectured before the Sunday Evening Fellowship Club, March 4, on "The Religion of a Man of Science."

Examination of Postoffice Employees.—The examination of the 7,400 postoffice employees for tuberculosis, made under the auspices of the Municipal Tuberculosis Sanatorium, was commenced, March 4.

Merger of Contagious Disease Hospital.—Health Commissioner Robertson has appointed a committee consisting of Mrs. William R. Cubbins of the Chicago Women's Club, Drs. William A. Evans, William L. Noble, Albert J. Ochsner, A. Augustus O'Neill and Daniel A. K. Steele to investigate the City Contagious Disease Hospital and to make recommendations for its betterment.

Psychopathic Institute for Criminal Court.—The criminal court is to have a psychopathic institute for which aid will be obtained from the Rockefeller Foundation. Judge Hugo Pam has been made representative of the criminal court judges on the committee to direct the work of the institution. The institution will be an extension of the Juvenile Psychopathic Institute, and will be supervised by Dr. Herman Adler.

Lectures on Tuberculosis.—A course of lectures on tuberculosis to be given at the City Club on the remaining Thursdays of March will be as follows:

March 15: "What May Lead the Layman to Suspect Tuberculosis—the Return of the Sanatorium Patient—How to Deal with the Tuberculosis Carrier," Dr. Charles Segal.

March 23: "Crippled Children and Tuberculosis," Dr. Edwin W. Ryerson.

March 29: "The Results of the Tuberculosis Survey," Dr. Clarence L. Wheaton. "Incidental Problems of the Survey," Dr. John Ritter.

Personal.—Dr. Julius Grinker has been appointed on the neurologic staff of Mercy Hospital.——Mrs. Albert H. Hoy, wife of Dr. Albert H. Hoy, formerly of Chicago, was drowned after the torpedoing of the Cunard Liner *Laconia*, recently.——Dr. Frank Billings has been compelled to resign as head of Base Hospital Unit No. 13, on account of ill health, and has recommended Dr. Arthur D. Bevan in his stead. Dr. Billings has gone to Pasadena, Calif., for two months, following his recovery from pneumonia.——Dr. Will P. Walter, Chicago and Evanston, was seriously injured in a collision between automobiles, March 4.——Lieut.-Col. Jacob Frank was reelected president of the Army and Navy Club of Chicago at its annual meeting, February 28.——Dr. Robert A. Smith has been elected exalted ruler of Chicago Lodge, B. P. O. Elks.——Dr. J. Gordon Wilson has returned to Chicago after several months' army medical service in England and France. Dr. Wilson has been especially engaged in investigating the effects of high explosives and concussion on the ear.

INDIANA

Personal.—Dr. William F. King, Indianapolis, assistant secretary of the state board of health, has been elected president of the Indiana Sanitary and Water Supply Association.

Sanitary Survey Complete.—Surg. Carroll Fox, U. S. P. H. S., has completed his sanitary survey of South Bend, and has made recommendation to the council for the betterment of conditions.

New Sanatorium.—An association was organized in Auburn recently to secure a tuberculosis sanatorium for the counties of Steuben, Noble, DeKalb and Lagrange. Dr. Thomas J. Creel, Angola, and Dr. John W. Morr, Albion, were elected second and fourth vice presidents.

Bill for New Medical School Building.—Representative Gentry has introduced a bill appropriating $300,000 for a new building for the Indiana University, School of Medicine, Indianapolis.——The students of the state university have presented to Governor James P. Goodrich an expression of their appreciation of his demand for an adequate equipment for the Indiana University School of Medicine.

MARYLAND

Personal.—Dr. John D. Blake, commissioner of health of Baltimore, has returned to his desk after an absence of two months, due to illness.

Campaign to Raise Funds for Maryland General Hospital.—The ten-day campaign to raise $150,000 for the benefit of the Maryland General Hospital resulted in securing $160,396. Other promised contributions are expected to bring the amount to $165,000.

Medical Preparedness in Baltimore.—The personnel of a base hospital has been enrolled at Johns Hopkins Hospital. ——The Medical Reserve Corps of the Army has thirty-eight members in Baltimore. The secretary of the local organization is Lieut. Edgar Smith Linthicum.

MINNESOTA

Infantile Paralysis.—The first case of infantile paralysis for the season was reported in St. Paul, February 22.

Hospital Notes.—The county commissioners of Itaska have decided to build a county hospital at Grand Rapids on a site donated by the village.

Quarantine Ineffective.—Dr. Henry M. Bracken, St. Paul, secretary to the state board of health, in an address, February 24, at Montevidio, declared that quarantines were things of the past and were of no value and that schools should not be closed when epidemics visit communities.

Whole Time Health Officer Wanted.—The St. Louis County Medical Association favors a whole time public health service and to this end has asked applicants for the position of health commissioner to put themselves on record as favoring the health commissioner giving up his entire time to the public health service.

Smallpox in the State.—There were under quarantine in Minneapolis, February 28, fifty-four cases of smallpox, the largest number recorded in any one time during the last three years.——On account of the outbreak of smallpox in the girls' dormitory of the State Normal School in St. Cloud, 600 students have been vaccinated and the school has been allowed to reopen.

Personal.—The resignation of Major Willmar C. Rutherford, M. C., Minn. N. G., St. Paul, was accepted by the president, February 13.——Dr. Charles F. Brigham, St. Cloud, fractured his arm in jumping from his cutter when his horse ran away, February 24.——Dr. Simeon O. Francis, White Bear, has been stricken with cerebral hemorrhage, at St. Augustine, Fla.

NEW YORK

Oppose Health Insurance.—At a meeting of the legislative committee of the Social Insurance Department of the National Civic Federation, held in Albany, March 7, steps were taken to oppose the Mills bill for compulsory health insurance. The committee made sixteen objections to the bill, including statements that it would confer no benefits on employees or employers, but would create needless economic burdens on all concerned.

Lectures on Public Health and Preventive Medicine.—The Albany Medical College offers a course of lectures in public health and preventive medicine in conjunction with a course in preventive medicine which for the first time is being given to second-year medical students. They are held Wednesday afternoons at 5 o'clock at the State Education Building, and are open to the public without charge. They are given under the direction of Dr. Augustus B. Wadsworth, director of the laboratories of the state department of health. Subjects during March are as follows:

March 14: The Administration of Antitoxin, Dr. William H. Park, Director Research Laboratory Department of Health, New York.

March 21: The Influence of Defect and Sexual Disease upon the Public Welfare, Mr. Robert W. Hill, Superintendent, State and Alien Poor, New York State Board of Charities.

March 28: Health Administration, Nuisances, and Communicable Diseases, Dr. Arthur Sautter, Health Officer of Albany.

Bill to Control Drug Habit.—A bill embodying the following provisions is now before the legislature:

(1) Establishment by the state of a dispensary system whereby the confirmed addict may get his drug pending treatment and cure. (2) A state check on narcotic drugs ordered by druggists and doctors by means of a triplicate order blank, one copy of which shall be filed with the state board of health. (3) Registration of addicts with the state board of health, to the end that statistics on addiction may be gathered by the state and state aid offered. (4) Amendment of the existing law permitting magistrates to commit addicts to the care of a physician as well as to a state institution. (5) Provision against the sale of unmixed narcotic drugs under guise of compounded medicine. (6) Amendment of the present law making illegal or forged use of physician's name or official blanks a felony. (7) Authorization of appointment of inspectors by the state board of health to enforce the statute.

New York City

Military Surgery at Columbia University.—The College of Physicians and Surgeons has asked the War Department for an instructor in military surgery.

Harvey Society Lectures.—The eighth lecture in the twelfth course of the Harvey Society Lectures at the New York Academy of Medicine will be given March 17 by Prof. Francis W. Peabody of Harvard University on "Cardiac Dyspnea."

Make Roster of Doctors and Nurses.—Former health commissioner Sigismund S. Goldwater, with the approval of the mayor and the cooperation of the heads of the city departments, is taking a census of the hospital facilities, physicians and nurses of New York City in preparation for any eventualities that may result from international complications.

More Persons Killed in City Streets.—The report of the National Highways Protective Society for February shows that forty-four persons lost their lives in this city during February, thirty of these deaths being caused by automobiles. This is an increase of sixteen deaths from automobiles over the same month of last year. In the remainder of the state twenty-three persons were killed, as compared with fifteen for the corresponding month of last year.

Campaign for Medical Examinations.—The committee on the prevention of tuberculosis of the Charity Organization Society has initiated a city-wide educational campaign for medical examinations. They have distributed 100,000 circulars headed "The Day Before You Die," setting forth the advantages of medical examinations and stating that out of thousands of men and women examined 70 per cent. had defects the correction of which would add materially to their length of life. Preparatory to initiating this campaign, the committee investigated eighty-four firms employing 325,000 persons.

Public Health Activities of the Academy of Medicine.—The public health committee of the New York Academy of Medicine has undertaken an investigation of the medical service of the police department at the request of the police commissioner and under the direction of Dr. W. Gilman Thompson. The committee has also made a study of the district plan of health administration such as is in operation in the Borough of Queens, as well as a study of the laws aimed at suppression of drug habits and the illicit sale of narcotic drugs, which have apparently failed to bring about any radical change in the situation. The committee is also securing information as to the work on poliomyelitis being done by various official and unofficial bodies.

Correction.—In THE JOURNAL, Feb. 10, 1917, p. 470, in a news item headed "Council of State Medical Society Reproved" reference was made to a resolution adopted by the Medical Society of the County of New York, and it was stated: "It was acknowledged that the council of the state society had not transcended its powers in taking this action."

We are now informed by the secretary of this organization of the exact wording of this resolution, which was:

> "*Therefore, Be it Resolved:* That The Medical Society of the County of New York disapprove and condemn this hasty, inconsiderate, extra-legal if not illegal indorsement by the Council of The Medical Society of the State of New York of a measure not fully approved by the body of the profession either in principle or in policy, while it is still under discussion by those most vitally affected by its provisions."

Personal.—Dr. W. Sohier Bryant sailed for England on the *Orduna*, February 24, to give his services to the cause of the Entente Allies.——Dr. Julien A. Gehrung, who sailed for France, February 13, has arrived in Europe and will work in Paris hospitals.——Dr. Stephen Smith, dean of surgeons of New York, celebrated his ninety-fourth birthday, February 19.——Dr. Joseph A. Blake has accepted the invitation of the French government to become head of the hospital built and conducted by Dr. Eugene Doyen, who died about two months ago. The hospital will be conducted as a war hospital under the American Red Cross.——Dr. Kenneth Taylor, formerly of New York, will have charge of the Robert Walton Goelet Research Laboratories which have been incorporated as a part of the new institution.——Dr. J. Bentley Squier has been appointed professor of urology at the College of Physicians and Surgeons, Columbia University, to succeed Prof. James R. Hayden, resigned.——Dr. Virgil P. Gibney has resigned his professorship of orthopedic surgery at the College of Physicians and Surgeons.——Dr. Emil Mayer has been appointed consulting laryngologist to Mount Sinai Hospital.

PENNSYLVANIA

Larger Library.—John Welles Hollenbach, Wilkesbarre, has presented the Luzerne County Medical Society with $10,000 for the purchase of books.

Personal.—Dr. Henry C. Allen, Schwenkville, was painfully injured recently in an automobile accident.——Dr. Louis S. Dunn, Chester, was injured in an automobile accident, February 19.——Major James F. Edwards, M. C., Pa. N. G., has been mustered out of the service and resumed his duties as director of the Department of Public Health of Pittsburgh.

Philadelphia

Medical Institutions.—The Visiting Nurse Society of Philadelphia, stating that demands for services of its staff of nurses have exhausted its sources, appeals to each physician for a yearly contribution of $1 to carry on its work among poor patients. Some of the latter pay 50 cents per visit; those not able to do this are helped without charge.

Additional City Nurses.—Twenty-two additional visiting nurses and fourteen inspectors have been added to the bureau of health corps by Dr. Wilmer Krusen, director of public health and charities, the result of the $25,000 appropriation made by councils. The nurses comprise a special staff which were employed during the infantile paralysis epidemic of last year. The regular staff already consists of fifty nurses.

RHODE ISLAND

Society Notes.—At the annual election of officers of the Washington County Medical Society, held in Westerly, Dr. Frank C. Pagan, Westerly, was elected president; Drs. Alexander B. Briggs, Ashaway, and Patrick J. Manning, Wickford, vice presidents, and Dr. William A. Hillard, Westerly, secretary-treasurer.——The Franco-American Medical Society, Providence, entertained at a dinner dance at the Narragansett Hotel, January 11.

Licenses Revoked.—At its meeting, held Dec. 14, 1916, the state board of health revoked the license of Dr. Charles Seward Parker, on the ground of gross unprofessional conduct.——On May 25, 1916, similar charges were brought against Dr. Albert B. Jones of Providence, but on the assurance from Dr. Jones' attorney that he had absented himself from the state and did not intend to return, the charges were postponed and his certificate has not been revoked.

VERMONT

Septic Sore Throat at St. Albans.—On account of the epidemic of septic sore throat at St. Albans, where there are said to be 1,200 cases, churches, schools and theaters have been closed, and the state board of health has interdicted public gatherings of every kind. The spread of the disease is believed to be due to the handling of milk by infected persons.

State Board Election.—At the annual meeting of the Vermont State Board of Medical Registration, held at Montpelier, February 13, the following officers were elected for the next biennial period: president, Dr. Schuyler W. W. Hammond, Rutland; vice president, Dr. Percy L. Templeton, Montpelier; secretary, Dr. W. Scott Nay, Underhill, and treasurer, Dr. George I. Forbes, Burlington. All meetings of the board will hereafter be held at Burlington, on the second Tuesday of February and July instead of alternating between Burlington and Montpelier as before. This affords opportunity for the use of the advantages offered by the University of Vermont, College of Medicine, whereby practicable examination may be conducted.

VIRGINIA

Hospital Items.—At a meeting held in Abingdon it was decided to erect in the near future a hospital building to cost $50,000 in memory of Dr. George Ben Johnston. The corporate name of the institution will be the George Ben Johnston Memorial Hospital of Southwest Virginia.

Personal.—The resignation of First Asst. William H. Whitmore, M. C., Va. N. G., was accepted, February 10.——Drs. Andrew D. Parson and J. A. Alexander Lipnick, ambulance surgeons at the Virginia Hospital, Richmond, have been succeeded by Drs. Clark and Edwards.——Mr. C. P. Cardwell, Hanover, has been appointed a member of the board of visitors of the Medical College of Virginia, Richmond, to succeed the late Dr. George Ben Johnston, Richmond.

WASHINGTON

Personal.—Dr. D. R. Forbes, Seattle, has returned after two years of service with the allied forces in France.

Simplification of Death Certificate.—Dr. John B. Anderson, health officer of Spokane, has sent a circular letter to physicians in the city asking their cooperation as regards the standardization of causes of deaths on death certificates. He suggests that in certain cases the international classification number be used instead of the name of the disease.

WISCONSIN

Sanatorium Bonds Voted.—The board of supervisors of LaCrosse County has voted to bond the county for $50,000, the proceeds to be applied to the establishment of a tuberculosis sanatorium. A site has been selected overlooking the Mississippi and Black River valleys.

Proposed Health Legislation.—Senator Pullen has introduced into the state legislature a number of bills on health topics. One provides that teachers shall send home any pupil who is unclean or infested with vermin. Another provides for a health certificate as a preliminary for a marriage license for all persons who have been afflicted with venereal disease, while a third bill provides for the reporting of venereal diseases to the public health authorities.

Hospital Notes.—The city council of Kenosha has appropriated $20,000 toward the cost of an isolation hospital to be operated in connection with the Kenosha Hospital. The balance of $20,000 will be raised by subscription.——One hundred thousand dollars of the $150,000 required to obtain a similar sum from Mr. and Mrs. Ferdinand Schlesinger for the Milwaukee Children's Hospital has already been raised.——The name of St. Olaf's Hospital, Superior, has been changed to the Martin Luther Hospital.

Personal.—Dr. Henry C. Werner, Fond du Lac, has been appointed head of the new State Home for the Feebleminded, Union Grove.——Dr. Joseph P. Donovan, who retired as city health officer of Madison, February 1, after a service of thirteen years, was given a testimonial of thanks and appreciation by the board of health at its meeting, February 16.——Dr. Adellon P. Andrus, Ashland, has accepted the position of assistant superintendent and senior physician to the State Tuberculosis Sanatorium, Waukesha.——Dr. Clarence A. Richards, Rhinelander, has been appointed a member of the state board of health, to succeed Dr. Hasse A. Meilike, Clintonville, term expired.

CANADA

University News.—The names of a number of McGill University graduates who are now overseas have been brought to the notice of the secretary of state for services rendered in connection with the war. They are: Col. Lorne Drum, Ottawa, Ont.; Lieut.-Col. Frederick G. Finley, Montreal, Que., officer in command of No. 1 Canadian General Hospital; Capt. James R. Goodall, Montreal, Que.; Major Lewis E. W. Irving, Edmonton, Alta., and Capt. C. C. Hale, London, Ont.

Personal.—Capt. Harry J. Watson, Winnipeg, is attached to the Perkins Bull Hospital, England.——Capt. Roland W. Young, Oshawa, Ont., after serving for a year in a hospital in Malta, is now medical officer of a prisoners' camp, 9 miles from Cairo, Egypt.——Dr. Charles L. B. Stammers, Smith's Falls, Ont., who has seen service in England, France, Malta, Egypt and Saloniki, is home on sick leave.——Capt. Harold C. Parsons, Toronto, with the University of Toronto Base Hospital at Saloniki, was returned ill to England, and has recently departed for Barbadoes to recuperate.——Dr. James B. Brown, Toronto, who was serving in the Mesopotamia campaign, returned home recently.

The Canadian Army Medical Corps.—Col. Frederick W. Marlow, Toronto, Ont., made a report before Parliament the past week, and recommended the completion of the organization of the service and, where necessary to bring the medical branch of the service up to the required standard, the increase of administrative staffs; the appointment in some districts of officers brought back to Canada from overseas; consideration of the advisability of increasing the permanent army medical corps for duty in Canada; frequent inspections of all districts and camps; the appointment of an officer for inspection, and the placing of the care of all returned soldiers under the Canadian Army Medical Corps, instead of under the Hospitals Commission, as at present. Colonel Marlow also advises the urgent consideration of the desirability of more hospital accommodation.

Canadian Doctors on Army Duty.—The minister of militia, in announcing that the Canadian Hospitals Commission would hereafter confine its work to the business side of hospital work, and that the Army Medical Corps would have charge of returned wounded soldiers, stated that the officers of the Canadian Army Medical Corps now number approximately 1,800, of whom about 500 are in Canada, and the balance serving overseas. A large proportion of those in Canada are assisting in carrying on the work of the Canadian Hospitals Commission. In addition to the numbers given above, there are 400 civilian practitioners partially employed in military work in Canada, and more than 400 Canadian doctors have proceeded overseas to join the Royal Army Medical Corps. It is announced that others who have not as yet been engaged will have an opportunity for valuable patriotic work in the near future.

GENERAL

Missouri Valley Physicians to Meet.—The annual meeting of the Medical Society of the Missouri Valley will be held in Keokuk, Iowa, March 22 and 23, under the presidency of Dr. Charles R. Woodson.

New Naval Medical Officers.—The customary graduation exercises of the Naval Medical School, Washington, were omitted at the last session, and the sixteen members of the class were presented with their certificates after a brief address by Surgeon General William C. Braisted.

New York Central Surgeons Hold Meeting.—At the annual meeting of the Railway Surgeons' Association of the New York Central Lines, held in Columbus, Ohio, February 22, Dr. William A. McMillan, Charleston, W. Va., was elected president; Drs. Harry S. Nobles, St. Marys, Ohio, and Ezra S. Koons, Glouster, Ohio, vice presidents, and Dr. John E. Cannady, Charleston, W. Va., secretary.

Rucker Guest of Honor.—The police and fire surgeons of Philadelphia gave a dinner in honor of Assistant Surgeon General William Colby Rucker, U. S. P. H. S., at the Racquet Club, Philadelphia, February 17, at which Dr. Rucker delivered a lecture, illustrated by lantern slides, showing the conditions that lead to the spread of contagious diseases in the tropics, and also the way in which these diseases are fought.

Tri-State Physicians Meet.—At the annual meeting of the Tri-State Medical Association of the Carolinas and Virginia, held in Durham, N. C., February 21 and 22, the following officers were elected: president, Dr. David T. Tayloe, Washington, N. C.; vice presidents, Drs. James K. Hall, Richmond, Va.; Addison G. Brenizer, Charlotte, N. C., and James R. Young, Anderson, S. C., and secretary-treasurer, Dr. Rolfe Hughes, Laurens, S. C. (reelected). The next meeting will be held in Spartanburg, S. C.

To Study War Medical Needs.—The commission of national defense at its session in Washington, D. C., February 24, discussed the question of the medical and surgical equipment of the army and navy in war. Dr. Karl A. Connell, New York, who had been on duty with the American Ambulance, Paris; Dr. Alexis Carrel, who has been working with the French army, and Col. Herbert A. Bruce, Toronto, formerly inspector general with the Canadian forces, appeared before the council and discussed actual war conditions.

"Medicine and Surgery": A New Publication.—The initial number of *Medicine and Surgery* of St. Louis has been received. The editor-in-chief is Dr. Philip Skrainka, the associate editorial staff consisting of men from various parts of the country. Special numbers on surgery, obstetrics and gynecology, genito-urinary diseases and syphilis are announced to be issued throughout the year. The publication is artistically prepared, and typographically is excellent. The contributions in this initial number cover a variety of surgical subjects and their general character is promising for future issues.

Bequests and Donations.—The following bequests and donations have recently been announced:

City Hospital, Oswego, N. Y., a bequest of $3,000, by the will of Leonard Ames.

Perkins Institution and Massachusetts School for the Blind, Boston; Boston Kindergarten for Blind, and Avon Home, Cambridge, Mass., $5,000 each; Cambridge Home for Aged People, $4,000; Boston Floating Hospital, $2,000, and Industrial School for Crippled and Deformed Children, $1,000, by the will of Mrs. Esther W. Smith, Cambridge.

Home of the Merciful Savior for Crippled Children, Philadelphia, $30,000, by the will of Mrs. Nannie D. Connarol.

Rush Hospital for Consumptives; Free Hospital for Consumptives and Home for Incurables, Philadelphia, each $2,000 and St. Vincent's Maternity Hospital, Philadelphia, $3,000, by the will of Suzanne E. Nead.

Pennsylvania Hospital for the Insane, a contingent bequest of the principal of a trust fund amounting to $100,000, by the will of James Anspach, Philadelphia.

The tuberculosis work of the Vanderbilt Clinic of the College of Physicians and Surgeons in the City of New York, and The Tuberculosis Clinic of the Presbyterian Hospital, New York, each $10,000; the Home Hospital for Tuberculosis, conducted by the New York Association for Improving the Condition of the Poor, $12,000; for the relief of tuberculous soldiers in Europe, $3,000; for research work of the Babbott Memorial Laboratory, of the Lumis Sanatorium, $2,000; for research work in tuberculosis at the Trudeau Foundation at Saranac Lake, N. Y., $2,000, and to the Sunny Side Farm for Tuberculous Children at Liberty, N. Y., $250,000, appropriated by the East River Homes Foundation of New York.

Aid to the Belgian Profession.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the quarter ending Feb. 28, 1917, shows the following contributions:

Dr. L. Waller Deichler, Philadelphia (second contribution)		$ 3.00
Previously reported receipts		7,958.26
Total receipts		$7,961.26
Previously reported disbursements:		
1,625 standard boxes of food @ $2.20	$3,575.00	
1,274 standard boxes of food @ 2.30	2,930.20	
353 standard boxes of food @ 2.28	804.84	
Total disbursements		$7,310.04
Balance		$651.22

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh.

National Board Examination.—The second examination to be given by the National Board of Medical Examiners will be held in Washington, D. C., June 13, and will continue about one week. Application blanks and information regarding this examination may be obtained from the secretary of the board, Dr. John S. Rodman, 2106 Walnut Street, Philadelphia. The following states have accepted the certificate of the national board: Colorado, Delaware, Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota and Pennsylvania. Favorable legislation is pending in twelve other states. Successful applicants may enter the reserve corps of either the army or navy without further professional examination, providing their examination papers are satisfactory to the boards of examination of these services. The certificate of the board is also accepted as a qualification for admission into the Graduate School of the University of Minnesota, including the Mayo Foundation.

Examinations in Ophthalmology.—The American Board for Ophthalmic Examinations held its first examinations at Memphis, Tenn., Dec. 14 and 15, 1916, when twelve applicants appeared for examination. Those who have been passed by the board will be duly certified after its next regular meeting. The regular annual examination for 1917 will be held just before the New York meeting of the American Medical Association. At that time only those whose applications are filed before March 1 can come up for examination. As the number of applicants from any particular section of the country becomes sufficient, special examinations will be arranged at the most convenient place that will furnish the needed facilities, the giving of a practical clinical and laboratory examination being possible only where good clinical facilities are available. Details with regard to these examinations and the requirements to be met can be obtained from the secretary, Dr. Frank C. Todd, 506 Donaldson Bldg., Minneapolis.

FOREIGN

American Surgeons Return to Their Work.—The American surgeons who left Graudenz after the diplomatic break between Germany and the United States have returned and resumed their work.

Ambulance News.—A new section of the American Ambulance left Paris for the front, February 27.——Fifty new recruits for the American Ambulance arrived in Paris, February 25.——A medical unit of ten physicians and ten nurses, financed by Hadassah, an organization of Jewish women, will be sent to Asia Minor to combat epidemics there.——Graduates of the class of 1885 of Harvard University have raised the necessary funds to procure two fully equipped ambulances, which will be presented to the American Ambulance, Paris.

Deaths in the Profession Abroad.—**Surg.-Col. Sir Benjamin Franklin**, aged 72; Indian Medical Service, M. R. C. S., England, 1867, L. S. A., London, 1869; surgeon to the Viceroy of India, and later director general of the Indian Medical Service and honorary physician to Queen Victoria and King Edward VII, died suddenly in London, February 17.——**A. Battelli**, professor of experimental physics at the University of Pisa, aged 55. His principal works were on electricity from the medical standpoint, experimental physics, etc. His pioneer researches in these lines won several important prizes. For some years he has been a member of the Italian national legislature.

Death of Dejerine.—The cable brings word of the death of the well known French neurologist, Jules Dejerine, professor of nervous diseases at the University of Paris. His neurologic service has been at the Salpêtrière in recent years, but during the war he has been in charge of the special central service for nervous affections among the wounded. His wife, née Klumpke, is an able neurologist also, and has been associated with him in much of his work, from their joint "Anatomy of the Nerve Centers" published in 1894, to recent publications on regeneration of nerves after suture, etc. He was a member of many scientific societies at home and abroad, and is said to have been particularly fond of trout fishing.

BERLIN LETTER

(Received March 2, 1917)

BERLIN, Dec. 16, 1916.

Women Students in the German Universities During the Second Winter of the War

During the second winter of the war the German universities had 4,820 women students enrolled, an increase of 24 per cent. over the previous year (3,920 students), and an increase of 100 per cent. over the enrolment of 1910. Nine per cent. of all students enrolled at the present time are women; last year the percentage was 7.4, and five years ago it was only 4.4. Last year only 10,000 of the 50,000 male students were in attendance. One third of the enrolled students were women. The registration of the women students in the various courses has changed notably during the last five years. The registration in mathematics, the natural sciences and medicine has shown the greatest increase. At present 24.5 per cent. of women students are registered in medicine. Five years ago 21.8 per cent. were so registered. The number of women medical students now is 1,182; the largest number before was 527. In mathematics and the natural sciences, 894 women are now registered, as against 356 or, in percentages, 18.5 as against 14.8. In dentistry, seventy-four are registered as against forty-nine heretofore. In philosophy, philology and history, the number has increased from 1,370 to 2,393. Political economy, agriculture, law, theology and pharmacy also show increased registrations.

A Hygienic Testament of the Late Professor Czerny

Among the papers of the late Professor Czerny was found the following "hygienic testament": 1. Life is not the greatest gift. Human ideals stand higher. A belief in the future, the hope that man will no longer combat his fellows because of differences of opinion, the fulfilment of true Christian love, will create a heaven on earth. 2. However, life is the only real possession of man. Money and lands are passing possessions. Accomplishment ceases with death. 3. It is therefore your duty to conserve body and soul, and to avoid all things which may endanger or shorten the duration of this precious gift. Not every one is blessed with a cheerful disposition, good will toward others and ripe judgment in meeting the little annoyances of life. Only he who succeeds in winning these virtues for himself will truly enjoy life. All *men are not equally endowed.* He who stands should see that he does not fall. 4. Look well after the health of body and mind. Divide the day wisely into hours of work and recreation. Eat good, wholesome food. Be clean in every respect and live in a dry, sunny, well ventilated habitation. 5. Eight hours of work, recreation and mental development, eight hours of rest, and eight hours of sleep are best. Two hours of sleep before and two hours of sleep after midnight are the most refreshing. Two hours should be devoted to the three meals of the day, two hours for art and lectures, two hours for the family, your friends and the public, two hours for a sane sport (walking, riding, driving, rowing, swimming, gymnastics and play in the open air). 6. Food should be easily *digestible, nourishing and meeting the requirements* of the metabolism. No more than 1 liter of food and drink should be taken at each of the three meals. A greater amount than this overloads the stomach. Moderation in eating and drinking should be practiced. An exclusive vegetable diet, in quantities sufficient for the motor activity of the stomach and intestine, does not contain enough calories. Therefore, albumin and fat, in easily digestible form (meat, fish, eggs, butter, milk and cheese) should be added to a vegetable diet. 7. Do not be a slave to your appetite. Alcohol (beer, wine, whisky, liqueurs), coffee, tea and tobacco have no nutritive value, but from habit, extending back through many generations, they have become necessary to man, and it is difficult to substitute anything to meet the requirement. They are all poisons, whose toxic effects have been mitigated by habituation, but in immoderate quantities they shorten the life of the predisposed individual. Tobacco and alcohol disrupt the nervous system, and lead to arteriosclerosis. Coffee and tea disturb sleep, and should not be imbibed after 4 o'clock. At least once during his lifetime every man should deprive himself of the use of any and all of these substances. 8. Children must be taught cleanliness. They should be given at least one sponge bath with cold water each day, should brush their teeth twice a day and likewise cleanse the mouth and wash the face and hands. A full bath should be taken weekly. Clothing and bed linen should be changed regularly. Do not use any dishes or bathtub but your own unless you are positive that they are well cleansed. Your habitation must be roomy, dry and sunny, and sleeping rooms must be large and well ventilated. 9. Do not put any more children into the world than you can educate and feed. 10. When ill do not delay securing the attendance of a competent physician, and follow his instructions closely.

LONDON LETTER

LONDON, Feb. 12, 1917.

The War

VOLUNTARY MOBILIZATION OF THE PROFESSION

The Central Medical War Committee has arrived at the conclusion that the whole situation with regard to the present position of the profession in relation to the war has been changed by the prime minister's statement that the time has come for the adoption of the principle of universal national service. The committee has sent a letter to him pointing out the special position and difficulties of the medical profession. By repeated appeals to the profession under the voluntary system, by its enrolment system, and by its system of calls subsequent to the passing of the military service acts, the committee has been able to provide a large number of surgeons for the army, but it is becoming increasingly difficult to keep up the supply. There are still men of military age in considerable numbers left in civil practice, but unfortunately a large proportion practice in industrial and munition areas in which the supply of *physicians in proportion* to population, even in time of peace, was not too great, and is now barely *equal to the demands* made on it. The committee, therefore, was brought to consider whether it would not be necessary to ask the government that some special steps should be taken to organize the whole medical profession for the national needs, civilian as well as military. The committee approves the general principle of mobilization of the medical profession, apart from any question of the general mobilization of the whole community, so that any physician shall give such service, whether in a military or a civil capacity, as he or she is competent to give, when required to do so by the state. The committee had intended to ascertain by an appeal to the profession whether or not its members were willing that the government should be told on their behalf that steps should be taken thus to organize the medical profession, irrespective of what was done for the rest of the community. But while the subject was under discussion, the prime minister's statement materially altered the whole situation, as the government intends that the whole community shall be mobilized for the national service. The committee thereupon resolved to seek an interview with the director-general of national service with the intention of putting the special position of the medical profession before him.

HONOR FOR THE DIRECTOR-GENERAL OF THE ARMY MEDICAL CORPS

Sir Alfred Keogh, director-general of the Army Medical Corps, has received from the king the order of G. C. B. (Grand Cross of the Bath). This is the highest honor which can be conferred on a soldier, and this is the first case in which a medical officer has received it. There has been no greater feat in the war than the swift organization and expansion of the hospital and medical service to meet the needs of our vast army, and that it has been accomplished with so little friction is due not only to the work which Sir Alfred has done during the war, but also to his preparation and planning, which he did during his previous tenure of his present office. When war broke out he had retired, but owing to his experience and capacity he was called back to his post. He has with great success harmonized the military element proper in the army with the great civilian influx, which includes most of the specialists of the country. An Irishman, he has shown all the tact and insight in handling men which has made many of his race great administrators. In the entirely new circumstances with which he was faced, he has exhibited an adaptability and flexibility which would probably be wanting, at his age at any rate, in the surroundings of the most conservative institution—the War Office—in the conservative country, if the post had been occupied by one of the more stolid English race. A remarkable tribute has been paid to him by Lord Esher, who states in a letter to the *Times* that when he was chairman of the committee which was reconstituting the War Office and proposed to put the director-general of medical services under the adjutant-general, Sir Alfred Keogh, in warm and almost impassioned language, tried to induce him to reconsider the proposal. At that time, when we were still under the influence of South African experience, and when only one or two prescient soldiers foresaw the inevitable European war, all military influences were brought to bear on the committee to limit the numbers of the army council. No one except Sir Alfred Keogh envisaged the Royal Army Medical Corps as other than an important but small branch of the "services" attached to an army in the field. It was not realized that to keep a force in the field was at least as vital a necessity as to recruit it. The present war swept away this illusion, but the mischief was done. How much of the suffering undergone by our soldiers then and since was due to the shortsightedness of the committee and notably of himself, Lord Esher says will never be known. The control of the adjutant-general's branch over the Army Medical Corps was responsible not only for the early failure to grip the medical factors of this war but also for the hampering conditions under which Sir Alfred Keogh has worked. His triumphs, and those of the Army Medical Corps have been achieved in spite of obstacles which the subordination of science to ignorance, of elasticity to military discipline, explains but cannot justify. So much for the usual official conservatism.

Increase in Number of Women in Industry

The tremendous increase which has occurred in the number of women engaged in industry since the beginning of the war is officially stated to amount to 850,000. In industrial occupations in July, 1914, there were 2,133,000 women; since then 314,000 have been reported as directly taking the place of men, the percentage of replacement being 14.7. In commercial occupations in July, 1914, there were 496,000 women; since then 264,000 women have been substituted for men, a percentage of 53.3. These two groups have evidently absorbed the largest number of women. But compared with peace-time figures the percentage of women now doing men's work rules highest in banking and finance, in transport, and in government establishments—a section which includes arsenals, dockyards, and national shell-filling and projectile factories. The accompanying table shows how largely women have been taking men's places in these branches of employment during the war.

INCREASE OF WOMEN WORKERS

Employment	Women Employed in July, 1914	Replacements by October, 1916
Banking and finance.........	9,500	37,000
Transport (nonmunicipal)....	17,000	41,000
Government establishments...	2,000	117,000
Local government	184,000	31,000

In industrial occupations the proportion of substitutes has been greatest in the chemical and metal trades. There is an actual drop in the number of women employed in the textile, clothing, and paper and printing trades. The dearth of industrial women's labor is most acute in the typical women's industries, in which the general rate of wages is considerably less than can be earned in munition factories or on men's work. Industrial substitution has been proceeding steadily. Various railways employ women as goods porters; at certain dockyards they are loading and unloading wagons, discharging loads of shale, etc., and working as pitprop and timber carriers and doing light cargo work. Women are also being engaged by plumbers as laborers; in india-rubber work they are curing tires; and in the pottery industry employers are now gradually introducing women as biscuit oven placers, although the heavy nature of the work is a difficulty. A curious side light on the restlessness caused by the war in typical feminine occupations is the estimate that 100,000 women have left domestic service and gone into war work.

PARIS LETTER

Paris, Feb. 8, 1917.

The War

AMERICAN AMBULANCES AT THE FRENCH FRONT

A new sanitary section of American ambulances has just left for the front. Like the preceding ones, this section is composed of twenty automobile ambulances and seven auxiliary automobiles (reserve cars, shop, kitchen, etc.). The initial cost of one of these sections is $30,000 (150,000 francs), and the yearly cost of maintenance is $15,000 (75,000 francs). At present there are eight sections in the service, the initial cost of which is $240,000 (1,200,000 francs), and the yearly maintenance of which costs $120,000 (600,000 francs). All the American ambulance men are students of the large universities who have volunteered for this service. More than fifty of these have already been decorated with the war cross, and two have received the military medal; some have been killed. The funds for the American ambulances have been furnished by American friends of France. The inspector general of the American ambulance field service is Mr. A. Piatt Andrew.

The president of the council of ministers has just received a telegram from Mr. Frederick Allen, president of the National Allied Relief Committee, informing him that the Allied Bazaar at Boston, arranged by the committee, yielded $450,000 and that $447,000 was realized from the bazaar held at Chicago.

NURSES AS ROENTGENOGRAPHERS

The undersecretary of state of the military health service has decided to entrust the roentgenographic work to the nurses of certain sanitary formations. Therefore he has ordered the directors of the service to inform the temporary nurses in the military hospitals subject to their orders that a course in the theory and practice of roentgenography will soon be begun at the Edith Cavell school in Paris, under the direction of Mme. Curie.

WAR NEUROSIS CAUSING GRAVE DIAGNOSTIC ERROR

Dr. G. Lian has published observations which were made on a soldier sent to a hospital with a disease diagnosed as "serious cardiac trouble (incapable of ever rendering further service in the army)." The striking symptom of this patient was a rolling, heaving movement of the body which threw forward the left hypogastric region and the left side of the chest while retracting the left clavicle, accompanied by spasmodic contractions of the muscles of the left anterior half of the thorax. A thorough clinical examination revealed the fact that there was no definite connection between this body movement and the regular radial pulse (25 respirations to 18 radial pulse beats). The patient suffers with insomnia, headache, tremors, mydriasis, and an exaggeration of the tendon reflexes. These symptoms appeared during a four days' bombardment in October, 1914. This disease, then, is not a grave cardiac disease, but a severe neurosis, a so-called war neurosis, the principal manifestation of which is a rhythmic, spasmodic contraction of the muscles of the left anterior half of the thorax.

TREATMENT OF COMPOUND FRACTURES

Dr. Depage of Brussels commends the Carrel method in the treatment of compound fractures. Immediately on the arrival of the patient at the field hospital the wound is laid open widely, bruised tissues are trimmed off, and all foreign material removed. Any bone splinters which appear to be alive are left undisturbed. Absolute hemostasis is produced. A number of Carrel tubes are then inserted, and the wound is irrigated every two hours with Dakin's solution. The dressings are renewed daily, and at each dressing the wound is cleansed thoroughly with neutral sodium oleate. The treatment is controlled by a thorough and careful bacteriologic examination. When the smear is negative for two or three days, the wound is closed by suture. The edges are trimmed, all cicatricial tissue being removed, and a perfect closure is effected. Granulations are left undisturbed. Flap operations are done when necessary, and resort is had to Tiersch grafting when this is indicated. Depage's results ave been exceedingly gratifying.

The Apportionment of Sugar and the Use of Saccharin

In certain cities of the province (Pau, Troyes, etc.) sugar being distributed by card. The central committee of sugar istribution favors using saccharin in the preparation of such products as have nutritive value without sugar, such as iscuits and pastry. The committee is strongly opposed to he substitution of saccharin for sugar in the manufacture f chocolate, because its greatest nutritive value is the sugar, which is an important ingredient in the preparation of chocolate. The committee is also opposed to the use of saccharin n sugar bonbons.

Assistance for the Roumanian Hospitals

A committee, composed of many noted women of the Roumanian colony of Paris, has just been formed to supply Roumanian hospitals with linen, woolen goods, and particularly woolen clothes. Donations will be received at the office of the committee, Avenue d'Antin, 49 bis, Paris.

The joint committee of the Parisian press at its last meeting decided to direct attention to the work of Mme. Lahovary, wife of the Roumanian minister to France, which is being conducted under the patronage of the queen of Roumania. The object is to aid the soldiers and people of Roumania who have become victims of the war. The address of this committee is 114 Champs-Elysées, where all gifts of currency or goods will be received. The names of the subscribers will be published in *Le Figaro.*

Prophylactic Value of Antitetanic Serum

Dr. Thiéry, associate professor at the Faculté de médecine de Paris, at a recent meeting of the Société de Chirurgie de Paris refuted the principal arguments invoked in favor of the prophylactic efficacy of antitetanic serum. It is said that since preventive injections are systematically made, tetanus is no longer observed. But, he asked, was it much observed before they were made? And do those who do not use the serum see more cases of tetanus than do those who use the serum? Before the war, Thiéry had never observed tetanus in a wounded patient who was treated in time and without serum. At the beginning of the war, numerous cases of tetanus were observed; since serum has been used prophylactically none have been observed. But this does not take into consideration evolution in the treatment of fresh wounds. Thiéry has obtained the best results with simple surgical operations and the use of antiseptics. Before the war Thiéry saw tetanus develop in a patient who had been given a timely injection of serum. A wounded soldier discharged from service succumbed to tetanus after his return home; he had also received injections of serum. One would say that in the first case the injection should have been repeated; retarded tetanus would be the verdict in the second case. The fact remains, however, that in both these cases of tetanus and death, serum injections had been given.

Dr. Riche reported the case (related to him by Dr. Desplas) of a man wounded in the shoulder by a bullet twenty months previously who had not received at that time an antitetanic injection. Sixteen days after operation, in which fragments were extracted, and in spite of an antitetanus serum injection given at the operation, and another injection given at a later operation, the patient developed generalized acute tetanus which lasted fifty days. According to Riche this observation may be interpreted in two different ways. The deduction would be that the patient remained for twenty months a carrier of tetanus germs; the bacilli, encysted by cicatricial tissue, as was the projectile, could have been liberated at the time of operation and cause generalized, acute tetanus in spite of one injection of serum made at that time and of a second eight days later. If this is true, then it is reasonable to doubt the efficacy of the preventive serum, not only as it is habitually employed, that is, after receipt of a wound, but also when it is given before receipt of a wound. It is possible that the serum itself caused the clinical picture; not that serum can cause tetanus; but it can produce tetaniform contractions which would correspond with relative apyrexia occurring in the course of generalized contractures. Another point in favor of this hypothesis is the fact that Desplas removed with the projectile the fibrous tissue which surrounded it, thereby eliminating to a great extent the probability of inoculation. It is not, therefore, the preventive efficacy of the serum, but its innocuousness, which would be doubted. And, perhaps, we should find there an explanation for the so-called cases of tetanus overcome by a preventive injection of serum.

At the Battle of the Marne there was a shortage of serum, and therefore, it is said, there were many cases of tetanus. The supply has since been replenished and tetanus has disappeared—proof of the efficacy of the serum. But Riche does not believe this to be the case. The Battle of the Marne was an event to which nothing that has since happened can be compared. Conditions existing at that time explain the extraordinary number of cases of tetanus observed. Among these were the great number of men wounded in a short time, difficulties of administering immediate treatment, ignorance of the necessity of early operation, the multitude of horses used as mounts and for draying purposes, and evolution of surgical technic in a region especially tetaniferous (swamp lands).

Dr. Walther, on the other hand, is firmly convinced of the prophylactic value of antitetanic serum. Among 270 wounded German soldiers, he observed nineteen cases of tetanus. They had all been wounded in the Battle of the Marne, and had been abandoned in the field hospitals by the retreating German army. They were without care for several days. On their arrival at the hospital, they were given injections of antitetanic serum, but there was a shortage of serum which prohibited its administration in some cases. Only one case of tetanus occurred among those who received injections. All the other cases developed among those who had not been treated with the serum. The preventive injection, in spite of delays (from five to eight days after the receipt of wounds) was therefore unquestionably of value. Walther is also convinced of the therapeutic efficacy of the serum. He cites two serious cases of tetanus in which a cure was effected by intraspinal injections of serum in quantities of 200 and 250 c.c., respectively. Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, did not believe that at the present time the value of antitetanic serum could be doubted. Thiéry contested the efficacy not only of antitetanic serum, but also of all forms of serotherapy. Dr. Proust had occasion to compare the differences of manifestations of primary tetanus in patients who had received injections and those who had not. At the beginning of the war, in August, 1914, he saw many fatal cases of primary tetanus. Unfortunately, antitetanic serum was not available and the wounded arrived at the interior hospitals without having received injections. Since then, on the other hand, under similar conditions of observation, not more than four cases of tetanus were discovered among more than 5,000 wounded soldiers, and even these four cases were attenuated to a considerable extent. All these facts speak volumes for the value of preventive injections of serum in tetanus.

Dr. Leriche claims to have observed in August, 1914, in the Vosges region and in Alsace, numerous cases of tetanus followed by early death. He did not have any serum. In September and October, 1914, there was a tetanus epidemic in the Oise and Somme districts. Toward the middle of October a supply of serum arrived. Following its use, tetanus practically disappeared. Surgical treatment of wounds is not the only cause of the disappearance of tetanus. On the other hand, systematic reinjection before operation eradicates late or retarded tetanus, just as the preventive injection caused primary tetanus to disappear.

Marriages

Lemuel Pinckney Peters, M.D., Clayton, Ill., to Miss Minnie J. Lucas of Timewell, Ill., at Chicago, January 27.

Leo Robert Fitzgerald, M.D., Detroit, to Miss Winifred LaMere of Florence, Wis., at Detroit, February 19.

Lieut. Asa Margrave Lehman, M. C., U. S. Army, to Miss Jessie Evelyn Roberts of Ardmore, Pa., February 2.

John Edward Siebel, Jr., M.D., Chicago, to Miss Pearl Meade of Los Angeles, at St. Louis, February 19.

P. A. Surg. Richard Henry Laning, U. S. Navy, to Miss Marguerite C. Boyer, at New York, February 5.

Asst. Surg. Charles Joseph McDevitt, U. S. P. H. S., to Miss Katherine O'Neill, at Seattle, February 7.

Pasquale Romeo, M.D., Bridgeport, Conn., to Miss Zula Zedeth Williams of New York, February 20.

Alexander Maxwell Glueckstein, M.D., to Miss Frances Davis, both of New York, February 22.

William Clyde Ellis, M.D., to Mrs. Reba Elliot, both of Phoenix, Ariz., February 14.

Deaths

Abraham Mylin Barr, M.D., Pittsburgh; Jefferson Medical College, 1865; aged 82; major and surgeon of the One Hundred and Forty-Second and One Hundred and Ninety-Second Pennsylvania Volunteer Infantry, during the Civil War; for six years a member of the select council of Pittsburgh; for four years a member of the common council and for six years physician to the city of Pittsburgh and county of Allegheny; local surgeon to the Pennsylvania System; died at his home, February 15.

William Bancroft Anderton, M.D., New York; Bellevue Hospital Medical College, 1879; aged 60; a Fellow of the American Medical Association; assistant to the chair of obstetrics and diseases of women and children in his alma mater from 1881 to 1889; attending physician to the DeMilt and Bellevue Hospital dispensaries; a member of the New York Academy of Medicine and the Harvey Society; died at his home, February 23.

Everton Judson Abbott, M.D., St. Paul; University of Wooster, Cleveland, 1875; aged 67; formerly a member of the Minnesota State Medical Association, and president of the Ramsey County Medical Society; professor of clinical medicine in the University of Minnesota, Minneapolis; attending physician to the St. Paul City and County Hospital, and attending surgeon to St. Joseph's Hospital, St. Paul; died at his home, February 25.

A. Miner Straight, M.D., Bradford, Pa.; Western Reserve University, Cleveland, 1870; Bellevue Hospital Medical College, 1874; aged 69; a Fellow of the American Medical Association; local surgeon of the Pennsylvania, and Buffalo, Rochester and Pittsburgh railroads; consulting surgeon to the Bradford Hospital since 1886; died at his country home, Barondale, February 19.

Alva Naylor, M.D., Platte City, Mo.; University Medical College of Kansas City, Mo., 1905; aged 46; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; was instantly killed, February 19, by the overturning of his automobile while making a professional call near Platte City.

Edward Field Walker, M.D., Providence, R. I.; College of Physicians and Surgeons in the City of New York, 1876; aged 70; a member of the Rhode Island Medical Society; obstetrician to and president of the staff of Providence Lying-In Hospital; consulting physician to St. Aloysius Home; died at his home, December 12.

Walter Hildreth Ranks, M.D., Shelburne, Vt.; University of Vermont, Burlington, 1897; aged 41; formerly a Fellow of the American Medical Association; a member of the Vermont State Medical Society; died in the Mary Fletcher Hospital, Burlington, January 17, a week after an operation for gastric ulcer with perforation.

Lewis Watson Smith, M.D., Pittsburgh; University of Pennsylvania, Philadelphia, 1901; aged 43; a Fellow of the American Medical Association, and a member of the American Association of Obstetricians and Gynecologists; a member of the staff of the Pittsburgh Free Dispensary; died at his home, February 23.

Raphael Brodeur, M.D., Cadillac, Mich.; University of the Victoria College, Coburg, Ont., 1873; aged 69; a member of the Michigan State Medical Society; sometime coroner of Wexford County and city physician of Cadillac; died suddenly while returning from church in his automobile, December 21.

N. E. Wilson, M.D., Douglass, Kan.; University Medical College of Kansas City, 1907; aged 40; formerly a member of the Kansas Medical Society; once mayor of Douglass; local surgeon to the Santa Fe System; died in a hospital in Winfield, Kan., February 8, from postpharyngeal abscess.

Arthur Mott Haight, M.D., Indianapolis, Ind.; College of Physicians and Surgeons in the City of New York, 1874; aged 66; a member of the Michigan State Medical Society; for forty years a practitioner of Michigan; died at the home of his daughter in Greenfield, Ind., January 16.

Edward Calvin Culbertson, M.D., Canton, Ohio; Ohio Medical University, Columbus, 1900; aged 44; formerly a member of the Ohio State Medical Association; superintendent of the Canton Emergency Hospital for the last three years; died at his home, February 20.

Edmund Elwood Fall, M.D., Walla Walla, Wash.; College of Physicians and Surgeons in the City of New York, 1887; aged 57; for several years manager of the Walla Walla *Evening Statesman;* died at his home, February 10, from cerebral hemorrhage.

Isaac C. Lambert, M.D., Colfax, Ind.; Curtis, Physio-Medical Institute, Marion, Ind., 1888; Kentucky School of Medicine, Louisville, 1899; aged 67; a Fellow of the American Medical Association; died at his home, January 25, from pneumonia.

John Thomas Curtis, M.D., Abilene, Kan.; Northwestern University Medical School, Chicago, 1867; aged 79; assistant surgeon of the Ninety-Ninth Illinois Volunteer Infantry, during the Civil War; died in the State Soldiers' Home, Abilene, January 11.

Gustavus Pierce English, M.D., Boonville and Utica, N. Y.; Long Island College Hospital, Brooklyn, 1882; aged 59; a member of the Medical Society of the State of New York; a specialist in diseases of the nose and throat; died in Utica, February 15.

Edward George, M.D., Van Buren, Ohio; Medical College of Indiana, Indianapolis, 1876; aged 66; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died suddenly at his home, February 21.

Winfield Scott McFarland, M.D., Sharpsville, Pa.; University of Wooster, Cleveland, 1885; aged 69; a member of the Medical Society of the State of Pennsylvania; also a druggist; died at his home, February 15, from cerebral hemorrhage.

Daniel Francis Ayres, M.D., Chicago Heights, Ill.; College of Physicians and Surgeons, Chicago, 1905; aged 47; formerly a Fellow of the American Medical Association; was found dead in his office in Chicago Heights, about February 12.

Edward Stark Parker, M.D., Pawtucket, R. I.; Harvard Medical School, 1900; aged 42; a member of the Rhode Island Medical Society; who was injured in an automobile collision several weeks ago; died at his home, February 18.

William Plunkett, M.D., Waterloo, Iowa; Michigan College of Medicine, Detroit, 1883; aged 83; for thirty years principal of a public school, and for fifteen years township clerk of Bayfield, Ont.; died at his home, February 13.

Howard Marsh, M.D., Russell, Kan.; Marion Sims College of Medicine, St. Louis, 1901; aged 45; a member of the Kansas Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, January 3.

Oramon Weed Burns, M.D., Winneconne, Wis.; Dartmouth Medical School, Hanover, N. H., 1877; aged 66; a member of the State Medical Society of Wisconsin; died at his home, January 17, from heart disease.

William Lee McFarland, M.D., Benicia, Calif.; Kansas City (Mo.) Medical College, 1890; aged 48; formerly a member of the Medical Society of the State of California; died at his home, February 2.

Humphrey M. Burfield, M.D., Bentonville, Ark.; Howard University, Washington, D. C., 1889; aged 73; for many years an official of the Pension Bureau, Washington, D. C.; died at his home, February 8.

Robert Emerson Thompson, M.D., Milwaukee, Wis ; Milwaukee Medical College, 1901; aged 51; formerly a member of the State Medical Society of Wisconsin; died at his home, February 22.

John Lunney, M.D., Darlington, S. C.; Eclectic Medical College of Pennsylvania, Philadelphia, 1864; aged 78; a Fellow of the American Medical Association; died at his home, February 17.

John L. Stearnes, M.D., Salem, Va.; University of Pennsylvania, Philadelphia, 1858; aged 82; a member of the Medical Society of Virginia; died at his home, February 22, from pneumonia.

William M. Clover, M.D., Knox, Pa.; Eclectic Medical Institute, Cincinnati, 1867; aged 86; formerly a Fellow of the American Medical Association; died at his home, February 26

Edward Randolph Sumpter, Pulaski, Tenn (license, Tennessee, 1901); aged 58; formerly a member of the Tennessee State Medical Association; died at Jacksonville, Fla., February 20.

Washington Jones Brandt, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1880; aged 58; died at his home, February 14, from cerebral hemorrhage

Frederick Gilnack, M.D., Rockville, Conn.; College of Physicians and Surgeons in the City of New York, 1867; aged 72; died at his home, January 3, from epidemic influenza.

Ernest Emil Mullen, M.D., Merwin, Ohio, and Apopka, Fla ; University of the South, Sewanee, Tenn., 1894; aged 49; died at his winter home in Apopka, January 11, from influenza

Herbert John Taxis, M.D., Pyrolite, Colo.; Jefferson Medical College, 1889; aged 52; formerly a member of the Colorado State Medical Association; died recently at his home.

Joseph E. W. Haile, M.D., Rockhill, S. C ; University of Pennsylvania, Philadelphia, 1880; Atlanta (Ga) Medical College, 1882, aged 57, died at his home, February 11.

Jared Alonzo Greene, M.D., Boston; Eclectic Medical Institute, Cincinnati, 1867; aged 71; for one term mayor of Laconia, N H ; died in that place, February 16.

Robert McChesney, M.D., Wilford, Utah; University of Virginia, Charlottesville, 1849; aged 89; died at the home of his daughter in Wilford, about January 24.

Henry Thomas Mairs, M.D., Osborn, Mo.; Missouri Medical College, St Louis, 1888; aged 53; died at his home, December 29, from cerebral hemorrhage.

Duncan B. McFarlane, Tulsa, Okla (license, Arkansas, 1903); surgeon in the Confederate Army during the Civil War; died at his home, February 8

William Harvey Sanders, M.D., Paducah, Ky ; Long Island College Hospital, Brooklyn, 1864; aged 73; died at his home, January 26, from facial erysipelas

J. W. Settle, M.D., Mexico, Mo ; College of Physicians and Surgeons, Keokuk, Iowa, 1864, aged 79; died at his home, January 30, from senile debility.

William Lincoln Paine, M.D., Westfield, Mass ; University of Vermont, Burlington, 1879; aged 62; died at his home, January 21, from pneumonia

Frank E. Young, M.D., Canton, Ohio; Cincinnati College of Medicine and Surgery, 1874; aged 64; died at his home, February 3, from asthma

William Landt, M.D., Mohawk, N Y.; New York Medical College, New York, 1858, aged 23; died at his home, December 28, from pneumonia

Walter W. Lee, M.D., Gordon, Ga ; Medical College of Georgia, Augusta, 1884; aged 63, died at his home, January 29, from heart disease.

Thomas J. Vance, M.D., Minden, La ; Jefferson Medical College, 1858; aged 82; a Confederate veteran; died at his home, February 3.

Hiram J. Hazelton, M.D., Barnett, Vt ; Homeopathic Hospital College, Cleveland, 1863; aged 78, died at his home, February 15.

Aurora W. Giddings, M.D., Anoka, Minn.; Albany (N Y.) Medical College, 1854; aged 86; died at his home, February 3

John P. Treacy, M.D., Pittsburgh; New York University, New York, 1862; aged 78; died at Chicora, Pa , February 8

J. R. McCray, Tiffin, Ohio (license, Ohio, 1896); died at his home, February 9, from pneumonia.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

KILLING PUBLIC HEALTH LEGISLATION

Michigan and North Dakota Are Instructed How to Legislate by a Cincinnati Advertising Agency

The "patent medicine" fraternity is again up to its old tricks in attempting to defeat legislation that has for its object the protection of the public health. During the past few months some states, recognizing that the public had the right to know what it is taking when it prescribes for itself, have introduced bills in the legislatures which would regulate to some extent the sale of "patent medicines" and would require, among other things, the statement of the names and quantities of the active ingredients of such medicines. Such a bill was introduced in the legislature of North Carolina and it had the approval not only of the state board of health but also of the newly elected governor of that state. The "patent medicine" interests chloroformed the bill!

There are now before the state legislatures of Michigan and North Dakota, respectively, two bills which the "patent medicine" people are fighting tooth and nail. Not that the opposition comes openly and frankly from the nostrum interests; that isn't their way of doing business. The Thompson-Koch Co., a Cincinnati advertising agency, is the "Bunty" who "pulls the strings" We have just received from Michigan a circular letter which, according to our informant, "has been sent to every druggist in Michigan." It is in opposition to House Bill No. 187 introduced by Representative Littlejohn. Here is the letter:

THE THOMPSON-KOCH CO.
ADVERTISING AGENCY
NEWSPAPERS, STREET CARS, MAGAZINES, BILLBOARDS, ETC.

32 West Sixth Street
Cincinnati, O

"Please write or wire members of your State Legislature to use every legitimate influence to kill Michigan House Bill No 187 by Littlejohn so called formulæ disclosure registration and license bill would result in withdrawal of all advertising and sale of package, household medicines, cosmetics and hair tonics in your state. That is result desired by members of doctors trust who are responsible for and back of this same bill in twenty different states and defeated every time We believe doctors trust thinks they control the Michigan Health Department Withdrawal of advertised package medicines and household medicines would result in inevitable increase in useless, dangerous and needless operations and would compel a doctor's fee in every slight ailment It is monstrous, vicious, mercenary and puts life and death in hands of political doctors without restraint, law or competition. The true object of this bill is to kill self medication and compel your people to pay doctors fee in every slight ailment The privacy of homes of people of Michigan in great danger No possible good can result from this legislation Advertised package medicines and household medicines are already governed by the strictest United States Food and Drugs Law, the Sherley Law, the Harrison Anti narcotic Act and the United States Internal Revenue department's rulings on alcohol in medicines and the States Food and Drugs Act of Michigan Do you know however that the doctors medicines in your state are entirely unregulated, but certainly should be Doctors trust bill exactly like this one has just been defeated in North Carolina and it should surely be defeated decisively in your state This is so important that we ask you to wire your Members of Legislature to defeat House Bill No 187, and you will earn gratitude of the people of your state in defeating what we believe an under handed attempt of doctors trust to prevent freedom in selling household medicines in your state Fight it hard Think; work quick to defeat this unjust bill Thanks for help

The Thompson Koch Advertising Agency"

The State Dairy and Food Department of Michigan has just issued a circular concerning House Bill No. 187. The facts it recites make interesting reading in connection with the highly colored piece of fiction sent out by the Thompson-Koch Advertising Agency. Here it is: ,

"The State Dairy and Food Department is charged by law with the inspection of all drugs and medicines as well as food in this state. It is made the duty of the department to find out what people put into their stomachs for medicines as well as foods. There are several thousands of proprietary remedies on the market. Many of them have merit, some are useless, and some are plain frauds, like the consumption and cancer cures. To analyze and inspect all these remedies would cost the state a great deal of money and yet the people should be protected from imposition in the medicine line.

"The State Dairy and Food Department, after careful study of the situation, drafted a bill to meet the situation fairly for all concerned. House Bill No. 187, introduced by Representative Littlejohn, is not the product of any so-called 'Doctors' Trust.' It was drawn by the Dairy and Food Commissioner. No doctor except Representative Littlejohn ever saw it before it was introduced. No doctor was consulted in the drafting of it. It is being misrepresented by advertising agencies and others as a 'formula disclosure' bill. There is not a line in it compelling the disclosure of any formula. The bill simply provides that manufacturers of proprietary remedies shall register the names and furnish a sample of their product to the Dairy and Food Commissioner. This saves the state the expense of traveling inspectors to pick up the samples. It provides that each manufacturer shall pay to the department $10 for the first registration and $5 for each subsequent one to meet the cost of inspection and analysis. If the manufacturer wishes to avoid paying this inspection fee he can do so by disclosing his formula and thus save the department the expense of analysis, but if he pays the inspection fee he is not obliged to disclose the formula. No manufacturer of a meritorious proprietary remedy can reasonably object to the provisions of this bill. The objections of the manufacturers of fakes should be disregarded. The bill will make conditions better for the owner of a preparation of merit. The only restriction on advertising in the bill is that advertisements of remedies claiming to cure consumption, cancer and other admitted non-curable diseases, should be prohibited. All reputable newspapers already refuse this kind of advertising. Yearly the manufacturers of proprietary remedies take large sums from the people of this state; most of them are located outside the state and pay no state tax. Why should they object to paying a paltry fee to reimburse the state for its inspection of their products? The bill as drawn does not affect the retail drug trade and preparations made by the local druggist are specifically exempt under the terms of the act."

The physician who sent in the Thompson-Koch letter suggested that "proprietary and patent nostrum interests are in bad straits when they have to hide behind an advertising agency in Cincinnati in order to carry their point before the Michigan legislature." The Thompson-Koch Advertising Agency has, apparently, sent the newspapers of North Dakota telegrams practically identical with the letter printed above. In one of these sent us by a correspondent in North Dakota, a light touch is given by a postscript scribbled at the end of the message, to this effect: "They ought to pass a law prohibiting the sending of such fool messages as this."

The North Dakota papers have also received a shorter telegram from an advertising agency in New York warning the papers that the bill in question is the result of the "secret workings of Chicago's Doctors' Trust" and adds the magic suggestion that should the bill pass "no medicines or allied lines could be advertised in North Dakota."

It remains to be seen whether the druggists of Michigan and the newspaper publishers in North Dakota will jump through the hoop at the crack of the whip of the advertising agencies that are acting as ring-masters for the "patent medicine" interests.

ICHTHYTAR

Report of the Council on Pharmacy and Chemistry

Ichthytar was submitted to the Council with the claim that it was essentially similar to ichthyol in composition and superior to it in therapeutic properties. The statements that were submitted regarding its composition made it impossible to determine whether or not it was similar to or identical with ichthyol. No evidence was furnished in regard to its therapeutic value.

On June 19, 1916, the Szel Import and Export Company was advised that more specific information was desired in regard to the chemical composition of Ichthytar, particularly evidence to substantiate the claim that it is essentially identical with ichthyol and also evidence for the claim that Ichthytar is "far superior" therapeutically to the product "of a similar name manufactured by a certain Company in Germany."

No evidence was received by the Council either in substantiation of the claimed composition or the asserted therapeutic properties of Ichthytar. On the other hand, as late as Oct. 3, 1916, the claim was made that Ichthytar is the "equivalent of the so called 'ICHTHYOL' of German origin."

On the basis of the available information the Council held the claims regarding composition and therapeutic value unsubstantiated and Ichthytar ineligible for New and Nonofficial Remedies.

Correspondence

The Young Doctor and Health Insurance

To the Editor:—In The Journal, Feb. 24, 1917, p. 651, I note a letter from Dr. Emmons under this title in which he speaks of Dr. Lambert's "excellent paper" on the subject of health insurance. He expatiates on the impossibility of making a living such as is due the modern graduate in medicine under present conditions, owing to low prices and strong competition of older men in the business, and inquires whether the proposed health insurance enactment would not be a splendid opportunity for the modern graduate, professionally and financially. He pertinently asks whether the public will receive proper treatment under such a measure. He further suggests that after from five to ten years of service the young physician engaged in public health insurance work might transfer to private practice of a more paying nature and release this work to younger men coming out of the colleges.

As this is the most talked of and important theme before the medical profession, and would have the same importance in the minds of future patients if they were acquainted with the propositions before several state legislatures on the subject of health insurance, I wish to make a few statements and ask a few questions for the general good and welfare.

Compulsory health insurance, as exemplified by the Mills bill, about to be considered by the New York state legislature, is similar to the health insurance measures enacted in England and Germany, where the members of the medical profession were markedly reduced financially and many of them completely beggared. How is this process of practicing to increase the finances of doctors, young or old? The Mills bill practically provides for the extension of lodge work, as can be verified by carefully perusing Sections 15 and 63, and for maternity work on the same line of precedure, as shown by Section 13.

Can any one honestly state that contract practice, as exemplified at the present time in lodges and through the corporation doctor, is a good thing for the public or the physician?

If through the proposed measure the panel physicians receive twice as much as the German physicians received under the compulsory health act, or a capitation pay of $3 a year, and could have the maximum number of patients to treat allowed under the law, they would be able to make something like $3,000 a year for making somewhere in the neighborhood of 17,000 personal consultations a year, allowing for the ten days' sickness averaged by workmen and 2,000 extra calls on account of women and children being more in need of medical attendance than men, and considering the office calls that would necessarily arise from such an amount of work to be at the rate of fifteen per day. This would average the physician somewhere from 15 to 18 cents a visit, house and office, and keep him at work night and day.

Would twice this amount remunerate the young man from college, and would this sort of experience fit him to do careful, scientific work in after years?

I should like to ask if personal choice of a physician (the free birthright of an American) and payment by visitation, or some method giving a living fee, are not fundamental principles in the practice of medicine. Both of these fundamental principles are violated in the Mills bill. While there is mention of "reasonable free choice of physician," the provision of funds to be raised by syndicates employing 250 or more men would nullify such free choice, and furthermore the extension of present society funds would have the same effect, so that a large number of the people to be affected by the measure would be deprived of their personal wishes in this respect. Concerning the remuneration of the physician, there is nothing more to be said than is mentioned above.

Shall the profession give its acquiescence or approval to a method of practice which promotes the loss of the injured man's rights, as in the case of farming out a crowd of men to be treated medically, so that the company doctor and the company lawyer can be on the ground first in case of accident?

Shall we sanction the passage of any measure that on the surface appears to be paternalistic, class legislation, benefiting a few at the expense of the many, without submitting it to a referendum and giving the physicians and their patients a chance to discuss the terms of the law and the probable benefits to be derived from its adoption?

This is the most important measure that has come before the public for a great many years, as it affects about 80 per cent. of the population and is alike important to the doctor and his patients.

We can hardly afford to enact such a measure for the benefit of a few physicians who will hold fine salaried offices, as provided for in the Mills bill in the case of the commissioners and their assistants, and to fill the pockets of a lot of political henchmen who will be sure to benefit by the creation of a machine having at its disposal something like three hundred million to spend for its beneficiaries, a considerable portion of which sum would undoubtedly be used up before it reached the poor workman for whom it is intended, unless this political mechanism worked very different from the routine business of managing political affairs.

Would it not be well for the medical profession to turn constructive and make a counter proposition that would be more adequate to suit the mutual needs of the doctor and patient than is offered by the proponents of health insurance laws now before the different state legislatures?

John V. Woodruff, M.D., Buffalo.
Chairman, Committee on Economics, Medical Society of the County of Erie.

Compulsory Health Insurance

To the Editor:—Referring to the letter of Mr. John B. Andrews, on this subject, The Journal, March 3, 1917, p. 729, I plead guilty to the exercise of poor judgment in quoting an estimate which I had no means of verifying; however, my reference was given. Mr. Andrews states no authority for his figures. It is to be hoped that they are correct. The statement that the British plan permits "free choice of physician" is hardly true, as that plan does permit choice of panel physicians, which is a far different thing to American interpretation. The one material point which I have wished to make is misunderstood by your correspondent, in his closing paragraph. I would not wish preventive medicine to supply "the same medical care as that offered by health insurance," but I do recognize that it has given and can give so much better service as to remove all reason for the makeshift of health insurance. A worker "left without resources" is one without either money or short time credit. This state occurs chiefly in the poorest paid and least thrifty class of workers. These men in their faulty habits of living and their invitations to disease can never be materially changed through health insurance. They can be materially changed through enlightenment and continued supervision. This contention is based on truth and a knowledge of conditions. That its promulgation should prompt a critic to endeavor to hoodwink the medical profession with the assumption that "physician" and "panel physicians" are synonomous terms leads to a query as to the identity of the critic. I would refer all men interested in this point to the remarks of Dr. C. E. Mongan before the Council of the Massachusetts Medical Society, *Boston Med. and Surg. Jour.*, Jan. 4, 1917.

W. D. Chapman, M.D., Silvis, Ill.

Compulsory Health Insurance

To the Editor:—The educational campaign of the advocates of compulsory health insurance has aroused much thought and discussion. Contrary to the course of events in European countries, the medical profession has been aroused in America before any measure has been placed on the statute books. This is fortunate, for the working of any health insurance scheme falls directly on the physicians and tends to change the fundamental basis of the practice of medicine from a personal relation to a corporate or commercial one. Whether this is a desirable change should not be decided hastily.

Wherever health insurance is in operation, the quality of the medical insurance work tends to become poorer, owing to an overworked and underpaid profession. Nothing has yet been brought forward which proves conclusively that the same thing will not happen in the United States. Figures of any kind in regard to medical fees under the proposed health insurance scheme are almost impossible to obtain from its advocates. It has been said that fees may be twice those of the English system. The highest figures obtainable work out to about 40 cents a call. Now physicians as a general rule consider their fee a secondary matter, and their present apprehension is for the quality of service quite as much as for their personal incomes. People get about what they pay for, and value it accordingly. The medical profession does not wish to become a 40 cent profession commanding 30 cents' worth of respect, nor does it wish to see the evils of lodge and contract practice extended.

Is not health insurance an attempt to supplement an inadequate wage, and if so, is there any reason why the burden of it should fall on the medical profession? It is fundamentally an economic question. The average wage is not sufficient for a workman and his family to live on in health; neither can they afford to be sick. To this premise all investigators subscribe. But the remedy! Shall it be a living wage, or various expedients to quiet the social unrest, such as hiring physicians, at a similar inadequate wage, to treat ills that could largely be prevented or cared for in the usual way, if the worker were paid a healthful wage? "Health is purchasable."

General Gorgas tells how good pay, which enabled the workmen in the Panama Canal Zone to live properly, did more to raise the health of the zone community to its very high standard than all the other sanitary measures. Real public health is impossible without adequate wages.

No one realizes more sympathetically than physicians the need for better health and care in sickness among the laboring classes. But health insurance, as at present advocated, merely spreads the burden. We must go to the root of the trouble, and secure for every man, woman and child his right to health through his ability to purchase the requisites for vigorous well-being.

Albert Bowen, M.D., Rochester, N. Y.

Medical Services in Social Insurance

To the Editor:—In the last issue of The Journal for the year 1916, you call for discussion on the compulsory health insurance problem. You also call attention to the fact that the council of the New York State Medical Society endorses the plan of the American Association for Labor Legislation.

It is increasingly apparent that the physicians of New York state are not inclined to agree with the council in commending the plan of the American Association for Labor Legislation.

Discussion of this subject in Buffalo has brought out clearly the main point of contention, namely, the provisions under the act for employment and payment of physicians.

Physicians as a class are only academically concerned with health insurance, considered from the insurance point of view alone. I believe the *majority* of physicians are heartily in favor of adequate compensation for the laboring man during illness. The question which I and doubtless most of the profession will ask is this: Why must the physician be dragged or dragooned into the measure at all? Why not insure the laboring man according to the best advice of the actuaries and leave the question of medical attendance absolutely open? The physician would be pleased to know that his patient is being well compensated during illness, giving reasonable assurance of payment for medical and surgical services in many cases in which without insurance no payment whatever would be expected. If home or hospital care be called for, that too might be provided for in the act by a more generous compensation, commensurate with the needs of the case.

The act might still provide for the appointment of official medical examiners or diagnosticians to protect insurance funds against malingering and conspiracy.

I have read any quantity of discussion on the question of health insurance, but so far have seen no measure offered which does not in some way propose to regulate medical practice.

As an afterthought, it does not seem practicable to attempt, as this measure obviously does, broadly to regulate or restrain quackery and malpractice by this indirect means. If quackery remains a problem in spite of present legislation, surely it will not be controlled by any form of health insurance legislation.

Joseph S. Lewis, M.D., Buffalo.

Another Scheme for Health Insurance

To the Editor:—Allen County, Kansas, has had a good deal of trouble regarding the care and compensation for the county poor. Last December I was elected president of the county medical society, and immediately proceeded to put in operation a plan which seems to have solved the problem satisfactorily to every one. I contracted with the county commissioner to care for the pauper practice for a fixed sum per month. As county health officer, all calls come to my office. They are then distributed among the members of the society. We have a scale of points, and each county service is counted so many points. The accompanying card is issued for each patient, and the funds are divided according to the points received by each physician.

J. S. Sutcliffe, M.D., Iola, Kan.

ALLEN COUNTY MEDICAL SOCIETY

This card entitles..
or family, Residence..
to free medical treatment for one week from date. Should further treatment be required, a new order must be obtained from
Date............... ....
COUNTY HEALTH OFFICER

This is to Certify that I have rendered the following services
to ....
Diagnosis: ....
State nature of services rendered and dates..
....
Number of points to be filled in by Secretary..
Dr..

Note: This card must be presented to the secretary of the medical society not later than three days after the regular meeting, following above dates; otherwise no credit will be allowed.

Bacterial Findings and Their Relationship to Pyorrhea Alveolaris and Interstitial Gingivitis

To the Editor:—In an article on this subject (The Journal, Feb. 10, 1917, p. 414), Dr. A. W. Lescohier made a reference to my article on the subject which needs some explanation.

According to Dr. Lescohier, there appears to be a difference in the bacterial findings in chronic alveolar osteomyelitis (pyorrhea) reported by me and those reported by other observers: my findings would place the pneumococcus as the predominating organism in pyorrhea, while the other observers report the streptococcus to be the predominating organism found.

The fact in the matter is that the organisms found by me and referred to as pneumococcus in chains or *Streptococcus lanceolatus-pneumoniae* are one and the same organism found by Brown and those reported by Hartzell and referred to by them as the *Streptococcus viridans*. The difference comes in, not in the findings, but in the nomenclature of the streptococcus. In an article entitled "Opsonic Therapy in Pyorrhea Alveolaris" (*Boston Medical and Surgical Journal*, Jan. 13, 1910), I called attention to the reason for my referring to those diplococci in chains as pneumococci in chains or *Streptococcus lanceolatus-pneumoniae*. I then gave the following two reasons for referring to them as pneumococci in chains which I wish to repeat here:

1. The individual diplococci making up the chain have their long diameter corresponding to the long diameter of the chains, while the true *Streptococcus pyogenes* has the long diameter at a right angle to the long diameter of the chain.

2. The chains after being shaken up for purposes of standardizing the vaccine were found to be broken up readily into their constituent diplococci, appearing morphologically like typical pneumococci, while the chains of the true *Streptococcus pyogenes* cannot be broken up readily, if at all.

In my article to which Dr. Lescohier refers, I have always spoken of the pneumococcus as found in this disease as the *Streptococcus lanceolatus-pneumoniae* or pneumococcus in chains. To my mind the *Streptococcus viridans* of other authors as reported found in this disease is nothing more than a streptococcus approaching the pneumococcus type rather than the true *Streptococcus hemolyticus* or *Streptococcus pyogenes*. Rosenow's transmutation of the true streptococcus into a true pneumococcus, and vice versa, further emphasizes the close relationship of the two organisms.

I trust that this will definitely explain that we are not finding different organisms in chronic alveolar osteomyelitis (pyorrhea alveolaris), but rather that some observers prefer to call the same organism *Streptococcus viridans* while I preferred to call it pneumococcus in chains.

Leon S. Medalia, M.D., Boston.

Practices of Reserve Medical Officers in Time of War

To the Editor:—Should the country ever be engaged in war, the Medical Department of the Army, in calling reserve officers to the colors, wishes to cause as little hardship and sacrifice to the reserve medical officers as may be consistent with the needs of the country. With this end in view, the department desires that you bring to the attention of the profession at large the necessity of the city, county and state medical societies organizing for the purpose of taking care of the practices of the officers of the reserve who respond to a call for service. In England this plan has proved of great benefit. The idea of the department is that the profession should organize on a similar basis.

For example, should Dr. Jones be called to the colors, the local medical society, through its members, would take care of his practice during his absence. On his relief from active duty, his practice would be returned to him intact. Such a plan will cause no unnecessary hardship on the officer responding to a call for service, while the absence of such a plan would penalize the officer who gives his service to the country in a crisis. The department appeals to the patriotism of the profession to protect the interest of those of the profession who may be called to duty in war.

Robert E. Noble, M.D., Washington, D. C.
(For the Surgeon General.)
Major, Medical Corps, U. S. Army.

Long Nitrous Oxid-Oxygen Anesthesia

To the Editor:—In The Journal, Feb. 17, 1917, under this caption, Dr. J. R. McCurdy says, "As far as my search of the literature has disclosed, there is no case on record as long as the one herewith reported—four hours and forty minutes."

In *Surgery, Gynecology and Obstetrics*, December, 1913, p. 759, I said, "I have administered it (nitrous oxid-oxygen) in point of time from a few seconds to over five hours." The "over five hours" was five hours and five minutes, to be exact. I did not report this case in detail, as there was nothing special about the anesthesia except its length, and Gatch had previously reported a case almost as long—five hours (The Journal, Nov. 11, 1911, p. 1593).

R. C. Coburn, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DERMATITIS DUE TO LAMPBLACK

To the Editor:—I wish to know whether or not there is any recent literature relating to the effect of naphthalene on the skin in causing acute or chronic dermatitis. For several years I have had charge of the surgical work of the employees of the local gas company, which manufactures its gas from California fuel oil. One of the by-products of this manufacture is lampblack which, by pressure and by the addition of a small amount of fuel oil, is later made into briquets. The hot lampblack as it comes from the furnaces is shoveled and otherwise handled by some of the employees. Last summer, during the hot weather, several of these men developed on their hands and arms what appeared to be a dermatitis. The condition was not serious and cleared up promptly when they did not come in contact with lampblack and when a mild ointment was used. The chemist of the gas company thought the effect was due to the fumes of certain hydrocarbons which were given off by the hot lampblack, naphthalene or some similar hydrocarbon being the principal factor. Apparently this condition develops only when the men are hot and perspire freely, which might suggest that naphthalene, etc., might be dissolved in the perspiration, thereby causing irritation, as I have not seen cases develop during the winter months.

I have just read Kober and Hanson's book on "Vocational Diseases," and can find no specific statement on this general point. I should therefore greatly appreciate any literature you can suggest, or any idea which can be utilized to prevent further recurrence.

Otis B. Wight, M.D., Portland, Ore.

Answer.—Employees in machine shops, factories, etc., in which the workmen come in contact with lubricating oils, and especially when the oils are used automatically over and over again, are particularly liable to suffer with dermatitis and furunculosis. This condition is intensified with the use of the higher hydrocarbons derived from the crude oils, such as benzol and naphthalene. Other substances, such as turpentine, anilin, mercuric chlorid, ether and alcohol, act in a similar manner. The British inspector of factories, in his annual reports for the years 1914, 1915 and 1916, refers to the occurrence of furunculosis and dermatitis among employees working in crude oils, and especially in the manufacture of gas. Heat is another causative factor in dermatitis, as has frequently been observed among bakers and stokers. A third possible cause is mechanical irritation of the skin. As a preventive measure it has been suggested that a small quantity of some coal tar antiseptic be added to the lubricating oil.

Further information is given in the Annual Report of the Illinois Department of Factory Inspection for 1916, which tabulates and describes the various occupational dermatoses, and in the Reports of the British Inspector of Factories and Workshops for 1913 and 1914.

SOLUTION OF RED MERCURIC OXID—INTRAVENOUS INJECTION OF POTASSIUM IODID

To the Editor:—1. I am desirous of giving a solution of red mercuric oxid intravenously. Please suggest a method by which I can bring the mercuric oxid into solution so that it can be used intravenously.

2. Would it be possible to inject potassium iodid intravenously in doses of 1 grain diluted with 3 c.c. of water?

Please do not publish my name.

F. A. M.

Answer.—1. Mercuric oxid is brought into solution by the addition of sodium iodid. The resultant solution is alkaline and contains the mercury as sodium mercuric iodid. The following reaction may be assumed to have taken place: $HgO + H_2O + 4NaI = Na_2HgI_4 + 2NaOH$. We would suggest the following formula:

Mercuric oxid	1
Sodium iodid	4
Distilled water	q. s. ad 100

Of the solution, from 1 to 3 c.c. are injected daily or every second day. One c.c. corresponds to 10 mg. or about 1/6 grain of mercuric iodid.

We may also refer you to an article by G. P. Grume on "The Intravenous Injection of Mercury," The Journal, Dec. 19, 1908, p. 2155.

2. The dosage mentioned would present no special dangers. It is understood, of course, that the injections would be made slowly, and with the usual aseptic precautions, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

Colorado: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Regular: New Haven, March 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeo.: New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

Maine: Portland, March 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 26-28. Sec., Dr. J. A. B. Adcock, 325 E. High St., Jefferson City.

Montana: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

Rhode Island: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Utah: Salt Lake City, April 2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Wyoming: Laramie, March 14-16. Sec., Dr. H. E. McCollum, Laramie.

Kansas October Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Oct. 10-12, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, of whom 7 passed and 1 failed. Twenty-four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern University	(1916)	82
Rush Medical School	(1916)	80
Tulane University of Louisiana	(1914)	85
St. Louis University	(1916)	84
Southwest School of Medicine and Hosp.	(1916)	84
Columbia University	(1916)	82
University of Texas	(1912)	80
FAILED		
University of West Tennessee	(1915)	62

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Atlanta Medical College	(1915)	Georgia
Georgia Coll. of Eclec. Med. and Surg.	(1893)	Arkansas
Chicago College of Medicine and Surgery	(1912)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1891)	Missouri
University of Illinois	(1916)	Illinois
Louisville Medical College	(1890)	Kentucky
University of Louisville	(1911)	Tennessee
Coll. of Phys. and Surgs., Baltimore	(1903)	S. Carolina
American Medical College	(1910)	Arkansas
Barnes Medical College	(1906) Oklahoma; (1908)	Nebraska
Missouri Medical College	(1880)	Missouri
National University of Arts and Sciences	(1915, 2)	Missouri
Northwestern Medical College	(1890)	Missouri
St. Louis University	(1915, 2)	Missouri
University Med. Coll. of Kansas City	(1898) (1912)	Missouri
Washington University	(1915)	Missouri
John A. Creighton Med. Coll.	(1901) Iowa; (1915)	Missouri
University of Pennsylvania	(1898)	Virginia
Marquette University	(1915)	Wisconsin

Michigan October Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 10-12, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 10, of whom 8 passed and 2 failed, including 1 drugless practitioner. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1916)	85.3
Detroit College of Medicine and Surgery	(1916)	78, 83.7
University of Buffalo	(1916)	85.4
Jefferson Medical College of Philadelphia	(1912)	88.5
Medico-Chirurgical College of Philadelphia	(1915)	80.6

and informally, put itself on record as demanding such recognition for the medical profession as is essential to public policy and in justice to the physicians of the state. In presenting the resolutions to this society, the committee held to these basic recommendations, as it believed the details should be settled in the state medical society. Your committee has kept to the purpose for which it was formed, namely, representation for the medical profession and a fair remuneration for all services rendered, and in this it believes it has been successful. At the present time we are placed in the position where, in urging recognition for the medical profession, we are expected to advance a bill which, as drawn, is not satisfactory in many of its paragraphs. I believe that while a free exchange of views should be allowed on the subject of compulsory health insurance, final decision should be delayed until further information is furnished.

Dr. Lewis I. Harris: I do not believe Dr. Gottheil's presentation does justice to him or to certain fundamental demands of society as a whole. I wish to defend in this discussion the principles of compulsory health insurance, and at the same time I wish to express myself as opposed to the Mills bill as it now stands. We hear it said that compulsory health insurance is inevitable. We know it is inevitable just as we know that the struggle for liberal government was inevitable. The achievements in the direction of social justice, such as the protection of child laborers, the protection of women in industry, compensation to laborers, and laws for shorter hours of labor, cannot be confined. It has been stated that the demand for compulsory health insurance has been artificially created. It is necessary in all progressive movements that we should have leadership. The argument that health insurance is an invasion of personal liberty has been made against every proposition to extend liberty, justice and opportunity. It has been argued that compulsory health insurance is class discrimination. This stale argument has been applied to all institutions created for the common weal. The greatest good to the greatest number is properly the ruling principle of democracy. It is claimed that by compulsory health insurance workers will be pauperized and pampered. It is now the fashion for employers to pauperize labor by the so-called "welfare activities," "bonuses," "company stores," etc. The employer now gives the laborer placebos and panaceas to keep him from realizing the need for real welfare work. The working man needs health insurance, and this need will be appreciated if his lot is viewed against the background of low wages and economic pressure, as can be seen from Sydenstricker's and Warren's reports. We are told that the constitution would be violated. We forget that there have been other amendments to the constitution, the fifteenth, for instance. We should halt and pause until physicians have had information from all sources and can express their wishes and desires in the matter.

Dr. I. M. Rubinow: I shall confine my discussion to the problems directly concerning the economic interests of the medical profession. I have heard the opinion expressed that with the broad problem of the necessity of health insurance the medical profession has nothing to do. I thoroughly disagree with this point of view. I shall devote my remarks to the general problem, since Dr. Lambert both here and elsewhere has explained and defended the medical provisions of the Mills bill. I do not discuss this problem in an official capacity. The American Medical Association, as of course you know, has no official opinion on the subject beyond the recognition that the movement is important and requires careful study. Don't you know that the entire opposition of private insurance companies is explained by one fact, namely, that under the bills advanced, insurance companies operating for a profit are excluded from participation? If there is no wage poverty, why is it that 40 per cent. of wage earners when sick go without medical aid? Over a million of the population of this city alone apply for free charitable medical aid. It may be in accord with American traditions for the medical profession to grant all that tremendous amount of medical aid free; but it is required also by American traditions that hundreds of thousands of honest workers are forced to beg for something they ought to be willing to pay for. Perhaps the most serious argument presented is that insurance only indemnifies but does not prevent, or reduce losses. Of course, this is simply not true. The preventive effects of social insurance are too well recognized throughout Europe to need a long argument. If by removing need when a man is sick we cannot improve his chances of recovery, what justification is there for the practice of medicine at all? The medical profession of this or any other state is fully within its legitimate rights when it subjects the provisions concerning medical aid to the closest scrutiny in the interests of both patient and physician; but I would consider it no less than a calamity for the profession, and a reflection on its intelligence, if it would be lured into opposing the principle of this important social reform by clever misrepresentations emanating from private insurance interests.

Dr. Henry W. Berg: Now every physician who has a license to practice medicine is free to bestow his philanthropy where he wishes, and to charge those who are able to pay what he feels is reasonable. Under compulsory health insurance he will have no chance to say what he ought to receive, or he will work under a salary, and he must be prepared to sell his services at a "market value." If he makes a blunder he is now responsible to God, to his own conscience and to the government. Under compulsory health insurance he is responsible to a number of officers and committes from which political and other outside influences cannot be debarred. It is no disgrace for us to look at this subject from the standpoint of our right, as honest and decent men, to earn a living in the community. Compulsory health insurance claims to be altruistic, but is it? When a working man does not pay his premiums for a certain period his insurance ceases. It may fail him when he is most in need of it. I want to ask you how a doctor can do efficient medical work when he is making twenty-four visits a day and receiving only from $1,500 to $2,000 a year.

Dr. Eden V. Delphey: The professional philanthropists are all working for compulsory health insurance; they are trying to put something over on us to our detriment. One may act from altruistic motives and yet be supplying no social need. I should have nothing to gain by the enactment of compulsory insurance. I am fighting because I practice mostly among people who would come under this act. At the same time I am altruistic because I am fighting for the professional life of my brother practitioners. Under the proposed measure a union bricklayer or a housesmith would be aristocrats in comparison with the physician.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

February, XLII, No. 3

1 *Exchange of Energy in Live Animal Tissues. Study on Liver. A. O. de Almeida, Rio de Janeiro.—p. 359.
2 *Catalase in Muscles of Large and of Small Animals. W. E. Burge and A. J. Neill, Urbana, Ill.—p. 373.
3 *Significance of Prothrombin and of Free and Combined Thrombin in Blood Serum. *H. S. Gasser, Baltimore.—p. 378.*
4 Postural Activity of Abdominal Muscles of Cat. F. H. Pike and H. C. Coombs, New York.—p. 395.
5 *Physiology of Stomach. Ammonia of Gastric Juice. H. L. Huber, Chicago.—p. 404.
6 Differences in Latent Period and Form of Contraction Curve in Muscle Strips from Different Parts of Frog's Stomach. W. C. Alvarez, San Francisco.—p. 422.
7 Differences in Latent Period and Form of Contraction Curve in Muscle Strips from Different Parts of Mammalian Stomach. W. C. Alvarez, San Francisco.—p. 435.
8 Reflex Respiratory Changes and Concomitant Threshold *Stimulus.* C. M. Gruber, Albany, N. Y.—p. 450.
9 Experimental Glycosuria. Lactic Acid Production in Blood Following Injection of Alkaline Solutions. J. J. R. Macleod and D. H. Hoover, Cleveland.—p. 460.
10 Nerve Conduction in Cassiopea. A. G. Mayer, Washington, D. C.—p. *469.*

11 Nature and Time Relations of Fundamental Heart Sounds. C. J. Wiggers and A. L. Dean, Jr., New York.—p. 476.
12 Depressor Function of Thoracic Sympathetic Nerve and Its Connections. R. Burton-Opitz, New York.—p. 498.

1. **Energy Exchange in Liver.**—De Almeida describes a new technic for the rigid measurement of respiratory exchanges of tissues suspended in defibrinated blood, which procedure is also applicable to the more simple process of determining the amount of gases in the blood.

2. **Catalase in Muscle of Large and Small Animals.**—Evidence is presented by Burge and Neill to show that the content of heart muscle in catalase, per unit of weight, bears an inverse relationship to the size of the animal, or a direct relationship to the intensity of the oxidation processes.

3. **Prothrombin and Thrombin in Blood Serum.**—There is only one kind of thrombin in serum says Gasser. This may be formed from prothrombin by the action of thromboplastic substance and calcium or may be liberated from a combination with antithrombin by alkali activation according to the method of Schmidt. The inactive stage from which thrombin is liberated by alkali activation is believed to be a thrombin-antithrombin combination. Thrombin is not liberated from combination with antithrombin by the action of thromboplastic substance. The amount of prothrombin in serum varies inversely as the amount of tissue extract present at time of clotting. The amount of thrombin formed in the presence of a given amount of thromboplastic substance is, apparently, definite in amount; it forms rapidly and is combined rapidly, the system then returning to equilibrium. This rapid inactivation is a potent factor in the maintenance of the normal fluidity of the blood. Plasma is very intolerant of free thrombin.

5. **Ammonia of Gastric Juice.**—Ammonia is normally found in small amounts in the gastric juice of man and dog. The amount is increased by high protein diet, and by the addition of ammonium salts to the food. The fundic mucosa contains the most ammonia, the pyloric mucosa is next in order, while mucosa of the cardiac end of the stomach contains the least ammonia. The duodenal mucosa contains less ammonia than the fundic mucosa. In certain pathologic conditions (especially gastric ulcer and cancer) the amount of ammonia in the gastric juice is definitely increased, but this increase may not be greater than found persistently in certain normal individuals. The origin of the gastric juice ammonia is a complex one. Some of the ammonia is evidently excreted from the blood, and this factor depends on the concentration of the ammonia in the blood. Part of the ammonia represents deaminization processes in the gastric mucosa, and these in turn depend on the quantity of protein in the food. The possible rôle of the gastric flora has not been eliminated.

American Journal of Public Health, Boston

February, VII, No. 2

13 Laboratory Diagnosis of Poliomyelitis. J. B. Neal, New York.—p. 144.
14 Birth Control in Its Medical, Social, Economic and Moral Aspects. S. A. Knopf, New York.—p. 152.
15 Year's Work in Hay Fever Prevention in United States. W. Scheppegrell, New Orleans.—p. 173.
16 Preaching Health on Highways. E. G. Williams, Richmond, Va.—p. 179.
17 Michigan's Part in War on Tuberculosis. A. Mulder, Holland, Mich.—p. 182.
18 Educational Work of Brooklyn Antituberculosis Committee. H. D. Jenkins, New York.—p. 187.
19 Designs for Privies. R. Messer, Richmond, Va.—p. 190.

Archives of Internal Medicine, Chicago

February, XIX, No. 2

20 Osteogenesis Imperfecta; Report of Cases. J. H. Hess, Chicago.—p. 163.
21 *Hereditary Hemorrhagic Telangiectasia; Report of Cases; Review of Literature. W. R. Steiner, Hartford, Conn.—p. 194.
22 *Clinical Study of Secretions on Proximal and Distal Sides of Pylorus. A. S. Robinson, Cleveland.—p. 220.
23 *Relation of Hypertrophic Osteo-Arthropathy to Pulmonary Tuberculosis. L. Kessel, New York.—p. 239.
24 *Typhoidin Quotients; Analysis of Factors of Uncertainty in Cutaneous Typhoidin Test. E. S. Kilgore, San Francisco.—p. 263.
25 *Comparison of Two Methods of Vaccinating Against Typhoid. E. S. Kilgore, San Francisco.—p. 276.
26. Agglutinins and Complement Fixing Antibodies in Serum of Persons Vaccinated Against Typhoid. K. F. Meyer and E. S. Kilgore, San Francisco.—p. 293.
27 d-Glucose Tolerance in Health and Disease. R. M. Wilder and W. D. Sansum, Chicago.—p. 311.

21. **Hereditary Hemorrhagic Telangiectasia.**—From a consideration of the histories of three families affected with hemorrhagic telangiectasis and those previously recorded Steiner concludes that heredity is the only important etiologic factor as yet discovered, and that both sexes are equally affected and equally capable of transmitting the disease. Microscopically, a developmental defect has been found in the dilated capillaries—the elastic and muscle fibers appear to be wanting. The capillaries, consequently, are very liable to produce hemorrhages by their rupture, which is induced either spontaneously or by traumatism. The hemorrhages from the nose are generally seen early in life, while the telangiectases are a later development. The cautery in most instances offers the best results in the treatment of the bleeding telangiectases.

22. **Secretions at Pylorus.**—The secretions on the proximal and distal sides of the pylorus have been studied by Robinson in 125 patients complaining of various gastro-intestinal disturbances. In 40 per cent. of these nothing pathologic could be found in the gastric secretions to account for the distress, except an increase in acidity above that considered as the average. These cases were diagnosed "gastric neurosis," most commonly secondary to an infection, as tuberculosis, syphilis, influenza, chronic constipation and mental or physical strain. In achlorhydria, simple and malignant (gastric cancer, 12 cases), and in pernicious anemia the acidity curve has a tendency to descend, in other conditions to ascend. The highest ascent was in duodenal ulcer. The duodenal secretions found in four patients having more or less typical symptoms of gallstones contained a heavy sediment, which was different from that seen in other cases. It was heavier and of an orange yellow color. Three of these patients were operated on and the gallbladder was found to contain numerous small stones. No abnormal findings were present in the duodenal secretions in cases of cholelithiasis in which only one stone was present. An alkaline doudenal secretion that is cloudy is said to be suggestive of an inflammatory condition in the duodenum or biliary tract. The cloud is due to the presence of bacteria and pus. It does not clear on the addition of sodium hydroxid. Considering the theory that pernicious anemia is caused by a hemolytic agent and that this agent is dependent on a disturbance of the gastro-intestinal tract, Robinson attempted to find out if there were present in the gastric and duodenal secretions any substances which had a greater hemolytic action than in normal secretions. The result was negative. Without a single exception the gastric and duodenal secretions from cases of pernicious anemia caused no more hemolysis than do normal secretions.

23. **Hypertrophic Pulmonary Osteo-Arthropathy.**—The thirty-two patients reported on by Kessel were suffering from pulmonary tuberculosis. They were all in the second or third stage of the disease. Kessel sought to establish some relation between the clinical manifestations of the pulmonary disease and the type of osteo-arthropathy present, but was unable to demonstrate a connection between the two. Pronounced evidence of pulmonary tuberculosis may be associated, on the one hand, with simple clubbing of the fingers, while, on the other hand, less marked manifestations of the pulmonary disease may be accompanied by distinct changes in the long bones. The bone changes, moreover, are not definitely associated with the type of degree of the clinical expression of the pulmonary disease. The author emphasizes, however, that hypertrophic osteo-arthropathy is present more frequently in pulmonary tuberculosis than the usual clinical examination would permit the author to believe.

24. **Typhoidin Quotients.**—The facts brought out by Kilgore in this study indicate even more strongly than those formerly reported that the cutaneous typhoidin test should not be relied on as an index of immunity in individual cases, and that even in a study of groups of cases its results need to be considered with much conservatism.

25. Comparison of Two Methods of Vaccinating against Typhoid.—The two methods reported on by Kilgore are the U. S. Army method and the Gay-Claypole method. He reports the following findings, with the understanding that they are to be given weight only in accordance with the number of observations on which they are based: 1. The higher the typhoidin quotient in a given person, the greater the chances of a severe reaction to antityphoid inoculation. 2. The severer local reactions to vaccine tend to occur in those subjects with the higher temperature reactions. 3. The supposedly more severe average reaction to antityphoid inoculation of subjects who have previously had the treatment is probably overrated. 4. The use of army vaccine, or sensitized vaccine sediment if the preparations are fresh, makes little if any difference in the average local and temperature reactions. 5. When either type of vaccine is administered every other day the temperature reactions following the second and third doses are likely to be more severe than when the injections are ten days apart. A difference in the local reactions is not so clear cut. The average impression of the subjects vaccinated every other day is that the second injection gave the greatest local and general discomfort and the third least. The average member of the ten-day group feels that both general and local reactions were less with each succeeding dose. 6. The typhoidin test failed to show any noteworthy differences in effectiveness between the two-day or ten-day schedules, and, in the first few weeks, between the two vaccines used. Later the typhoidin quotients were higher in those who had received sensitized vaccine, but the differences are not decided enough to support definite conclusions that this is the rule. 7. According to the typhoidin test it is suggested that the ones who react least to vaccination tend to profit most by its administration.

Canadian Medical Association Journal, Toronto.

February, VII, No. 2

28 Paratyphoid in Army at Dardanelles. E. N. Coutts.—p. 97.
29 Some Clinical Aspects of Acute Anterior Poliomyelitis. C. F. Martin, Montreal.—p. 113.
30 Poliomyelitis as Seen by Surgeon. A. M. Forbes, Montreal.—p. 119.
31 Advantages of Early Sanatorium Treatment. D. Townsend, River Glade, New Brunswick.—p. 125.
32 Dislocations of Spine. C. E. Smyth, Medicine Hat, Alberta.—p. 129.
33 Hay Fever. F. W. Gershaw, Medicine Hat, Alberta.—p. 131.
34 Diabetes Mellitus in Child of Three. L. M. Lindsay, Montreal.—p. 133.
35 Infantile Eczema and Status Lymphaticus. L. M. Lindsay, Montreal.—p. 135.

Colorado Medicine, Denver

February, XIV, No. 2

36 Botulism. G. H. Curfman, Salida.—p. 35.
37 Care of Mentally Disordered in Colorado. S. W. Hamilton, Utica, N. Y.—p. 42.
38 New Growths and Infections Associated with and Following Chronic Suppurative Appendicitis; Report of Three Cases. C. E. Tennant, Denver.—p. 45.
39 Study of Diseases of Chest. J. J. Waring, Denver.—p. 52.

Indiana State Medical Association Journal, Fort Wayne

February, X, No. 2

40 Certain Phases of Disease of Lacrimal Apparatus. W. C. Posey, Philadelphia.—p. 43.
41 *Incidence, Diagnosis and Treatment of Visceral Syphilis. G. W. McCaskey, Fort Wayne.—p. 51.
42 Tuberculosis Plus. A. Henry, Indianapolis.—p. 59.

41. Abstracted in The Journal, Oct. 28, 1916, p. 1326.

Journal-Lancet, Minneapolis

February 15, XXXVII, No. 4

43 Cysts of Larynx; Report of Cases. G. B. New, Rochester.—p. 99.
44 Surgical Limitations of General Practitioner. J. H. Adair, Owatonna.—p. 102.
45 *Hematopoietic-Hemolytic Index; Differential Diagnosis of Pernicious Anemia Amenable to Cure by Splenectomy. J. P. Schneider, Minneapolis.—p. 105.
46 Acute Dilatation of Stomach in Pneumonia; Report of Cases. A. F. Bratrud, Grand Forks, N. D.—p. 108.
47 Sixty-Five Consecutive Cases of Grave Appendicitis without Death or Impairment. D. V. Moore, Yankton, S. D.—p. 111.
48 Infantile Pyloric Stenosis Necessitatis. J. T. Leland, Herman.—p. 115.
49 Opportunities for Special Work in Obstetrics in New York. A. C. Tanner, St. Louis Park.—p. 117.

45. Hematopoietic-Hemolytic Index in Differential Diagnosis.—A total of eighty-eight studies in fifty-nine cases have been made by Schneider. Of these, twenty are patients with pernicious anemia, one with hemolytic icterus, eleven with severe anemias other than splenic, and the remainder with miscellaneous conditions, nonhemolytic in character. Of the patients with pernicious anemia, seven have been splenectomized. That the blood picture and the clinical picture of chronic enteric bleeding anemia may be mistaken for parenteral anemia, was illustrated by the findings in four cases, all of these proving at operation or necropsy to be carcinoma of the stomach. The duodenal pigments presented an oligochemia in degree parallel with the severity of the anemia. Hence, while the blood findings become more and more difficult of interpretation, the severer the bleeding anemia, the more strikingly the duodenal pigment values stand at opposite poles. It is, therefore, of prime importance in a given case to confirm by a quantitative estimation of the duodenal pigments the splenic origin of an otherwise classical pernicious anemia, particularly when splenectomy is contemplated.

The hematopoietic-hemolytic index should be ascertained. Briefly, the H—H index $= \frac{Z + Y}{X}$ in which Z represents the thousands, including the first decimal of the total pigment value as determined quantitatively by the spectroscopic method Y, the same of the blood count in round numbers, and the value of X, 6. To illustrate: in a given case, with the total pigment values around 5,400, the blood count 1,500,000, the H—H index is $\frac{5.4 + 1.5}{6} = \frac{6.9}{6} = 1.1$, which is a plus index. In another case the total pigments are 2,200, the blood count is 1,500,000, the index $\frac{2.2 + 1.5}{6} = \frac{3.7}{6}$, or 0.6 —, which is a severely minus index. In the former case so much pigment could not be obtained unless the marrow still supplied the raw material in great abundance. In the author's series of twenty cases, seven only yielded a plus H—H index, while two approached an index of one. Of these seven, three have been splenectomized with apparently more than the rather usual temporary improvement. However, since less than one year has elapsed since splenectomy, Schneider withholds judgment.

Journal of Biological Chemistry, Baltimore

February, XXIX, No. 1

50 *Excretion of Creatin and Creatinin Parenterally Introduced. J. F. Lyman and J. C. Trimby, Columbus.—p. 1.
51 *Cholesterol and Cholesterol Esters in Human Blood. W. R. Bloor and A. Knudson, Boston.—p. 7.
52 Benedict's Method for Estimation of Total Sulphur in Urine. M. H. Givens, New Haven, Conn.—p. 15.
53 Chemical Composition of Placenta (Bovine). F. Fenger, Chicago.—p. 19.
54 Estimation of Hydrocyanic Acid and Probable Form in which it Occurs in Sorghum Vulgare. J. J. Willaman, St. Paul, Minn.—p. 25.
55 Effect of Anesthetics and of Frosting on Cyanogenetic Compounds of Sorghum Vulgare. J. J. Willaman, St. Paul, Minn.—p. 37.
56 *Factors Involving Accuracy of Creatinin Determinations in Human Blood. A. O. Gettler, New York.—p. 47.
57 Behavior of Chickens Fed Rations Restricted to Cereal Grains. E. B. Hart, J. G. Halpin and E. V. McCollum, Madison, Wis.—p. 57.
58 *Relative Value of Certain Proteins and Protein Concentrates as Supplements to Corn Gluten. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 69.
59 *Cholesterol in Human Blood Under Pathologic Conditions. W. Denis, Boston.—p. 93.
60 Epinephrin Uracil Dinucleotide and Structure of Yeast Nucleic Acid. W. Jones and B. E. Read, Baltimore.—p. 111.
61 Mode of Nucleotide Linkage in Yeast Nucleic Acid. W. Jones and B. E. Read, Baltimore.—p. 123.
62 Influence of Intravenous Injection of Witte's Peptone on Sugar Content of Blood and Epinephrin Hyperglycemia and Glycosuria. S. Kuriyama, New Haven, Conn.—p. 127.
63 Variation in Amount of Phosphatides in Corpus Luteum of Sow During Pregnancy. G. W. Corner, Berkeley, Calif.—p. 141.

50. Excretion of Creatin and Creatinin Parenterally Introduced.—Subcutaneous injections of creatin into rabbits and man were followed by increased urinary creatinin excretion which Lyman and Trimby regard as further evidence of an intravital transformation of creatin to creatinin. In man the larger part (76 to 77 per cent.) of the creatin injected was destroyed or stored in the body. The injection of creatinin was not followed by the excretion of creatin in the urine.

51. **Cholesterol and Its Esters in Human Blood.**—In normal human blood Bloor and Knudson found a constant relation between free cholesterol and cholesterol esters. In whole blood the average percentage of cholesterol in combination as esters was found to be 33.5 per cent., in plasma 58 per cent. of the total cholesterol. The variation from the average in individuals was about 15 per cent. of the average. There was no notable difference in these values between men and women. In pathologic conditions the relation between free and bound cholesterol was found normal in all cases except carcinoma and most cases of nephritis, in both of which the percentage combined as ester was low. In pregnancy the values for cholesterol esters were high. The constant relation between free and bound cholesterol, the authors claim, gives further support to the assumption that cholesterol takes an active part in fat metabolism.

56. **Accuracy of Creatinin Determinations in Human Blood.**—In the light of the experimental evidence presented, Gettler does not subscribe to McCrudden and Sargent's view, that all creatinin blood values heretofore reported are useless, because of error in method. The values, in normal blood, of Gettler and Baker are correct and are here again confirmed. Furthermore, in all other reported values, which lie at 2 mg. in 100 c.c. and above, the error is not enough to warrant rejection. A table is given for reading milligrams of creatinin in 100 c.c. of blood directly, in which all the above sources of error have been accounted for. Known solutions of creatinin have been determined with the Folin standard and also with this table, conclusively proving that for values of 0.1 to 0.5 mg. of creatinin the Folin standard gives values much too high. Eleven additional normals have been determined for their creatinin value. These range between 0.1 and 0.4 mg. in 100 c.c., confirming Gettler and Baker's previous report. The values of 1.0 to 2.0 mg. in 100 c.c. as reported by Folin and Denis, and by Myers and Fine, Gettler says, are much too high.

58. **Protein Supplements to Corn Gluten.**—Data regarding the growth of rats are presented by Osborne and Mendel to show the relative nutritive values of a number of proteins and protein "concentrates" when used to supplement corn gluten in an otherwise adequate ration. The products studied included casein, lactalbumin, edestin, cottonseed protein, cottonseed flour, soy bean flour, "milkalbumin," beef tissue, fish meat meal, corn oil cake, "vegetable albumin flour," brewers' grains, distillers' grains, pea meal and peanut meal. The efficiency of these supplements presumably depends essentially on their relative content of lysin and tryptophan; for the addition of these amino-acids, either as such, or in the form of proteins yielding them, renders corn gluten suitable for growth. Of the various proteins employed to supplement the inefficient corn gluten, lactalbumin is by far the most effective. Satisfactory growth is produced with smaller quantities of this protein than of any of the others recorded. The samples of brewers' grains, distillers' grains, and "vegetable albumin flour" used were the least efficient supplements tested, presumably because of their low content of lysin. It is evident that the small additions of the more efficient proteins actually supplement the corn gluten instead of themselves furnishing all of the protein used for growth, because equivalent amounts of these proteins alone in a similar ration are incapable of inducing a comparable degree of growth.

59. **Cholesterol in Human Blood.**—Among the pathologic conditions examined by Denis, hypercholesterolemia was found to exist only in diabetes and only in a relatively small number of cases of this disease. Low cholesterol values are not characteristic of any special pathologic condition but are invariably found in conditions in which marked prostration or cachexia exist. Cholesterol determinations in the blood are therefore at present of no value in the clinical diagnosis or prognosis of disease.

Journal of Laboratory and Clinical Medicine, St. Louis

February, II, No. 5

64 *Histopathology of Autonomic Nervous System in Goiter. L. B. Wilson, Rochester, and T. O. Young, Minneapolis.—p. 295.
65 *Piperazin and Other Organic Urate Solvents. P. J. Hanzlik, Cleveland.—p. 308.
66 *Chronic Colitis and Its Roentgenologic Findings. F. B. McMahon and R. D. Carman, Rochester, Minn.—p. 328.
67 Certain Aspects of Purulent Meningitis. G. E. Kiely, Cincinnati.—p. 341.
68 Apparatus for Use in Examining Feces for Evidences of Parasitism. M. C. Hall, Detroit.—p. 347.

64. Abstracted in The Journal, Nov. 25, 1916, p. 1625.

65. **Piperazin and Other Organic Urate Solvents.**—Hanzlik failed to find any reliable evidence to show that piperazin, in small or therapeutic doses, imparts to urine urate solvent qualities, either by direct addition or after excretion. Excessive doses of the drug produce a slight but practically negligible increase in uric acid excretion, the same being effectively secured by the use of such well known alkalies as bicarbonate and citrate. The solvent action of low concentrations of piperazin on calculi is practically negligible. In very high concentrations a solvent power, though limited and doubtful, seems to exist. There is no reliable evidence to indicate that piperazin can prevent or remove urate deposits. Diuresis is uninfluenced by the administration of even large doses of piperazin. The direct addition of piperazin to urine renders it alkaline. However, after administration the reaction remains unchanged because in its passage though the body enough piperazin is destroyed to markedly reduce its concentration in the urine. Scientific evidence, though limited, and clinical opinion, indicate that piperazin is valueless in gout. The administration of piperazin may be attended with serious side actions. There is sufficient scientific evidence to indicate the worthlessness of the following as urate solvents; urosin, lycetol, sidonal, quinic acid, lysidin, urol, quinolin, colchicum and piperidin.

66. **Chronic Colitis and Roentgenologic Findings.**—The authors' experience suggests that the Roentgen findings when carefully correlated with the clinical history can be made of much use in the diagnosis of chronic colitis. The roentgenogram also enables a more accurate estimate of the extent of involvement and thus may serve as a guide in determining whether the treatment shall be medical or surgical. There are definite organic changes in all the coats of the colon wall in chronic colitis, resulting from chronic inflammatory reaction with edema, lymphocytic infiltration, thickening, scar tissue formation and contraction. The Roentgen examination in these cases shows the colon to be small, smooth and without haustration in the part or parts affected.

Journal of Nervous and Mental Disease, Lancaster, Pa.

February, XLV, No. 2

69 *Stratigraphic Analysis of Finer Cortex Changes in Certain Normal Looking Brains in Dementia Praecox. E. E. Southard and M. M. Canavan, Boston.—p. 97.
70 *Tumors of Thymus in Myasthenia Gravis. E. T. Bell, Minneapolis.—p. 130.
71 *Abderhalden Reaction in Mental Diseases. H. A. Cotton, E. P. C. White and W. W. Stevenson, Trenton, N. J.—p. 144.

69. **Cortex Changes in Dementia Praecox.**—Southard and Canavan present an analysis, chiefly stratigraphic, of certain lesions, notably nerve cell loss and gliosis (including satellitosis) in four cases of dementia praecox. These cases were cases which showed no gross aplasia, sclerosis or atrophy in the gross brain, and yet exhibited symptoms of two years' or greater duration, entitling them to be considered in the dementia praecox group. In connection with this work, a review of Kraepelin's estimate of structural work in dementia praecox brains is offered, and the stratigraphic data are presented in relation to Kraepelin's views as to the functions of suprastellate and infrastellate layers. Absence of suprastellate lesions in a case of the paranoic or paraphrenic group was noted, but there was no special evidence of schizophrenia in this case as clinically viewed; the case did show infrastellate lesions in areas contiguous with one another in the two flanks of the brain. It might be possible to correlate the late catatonia and late hallucinosis in the case with these infrastellate lesions. Other cases possibly more typical

spinal dura mater can he speak with any certainty as to the mode in which pressure is being exerted on the cord. At present all that the surgeon can do is to relieve pressure and to hope that the cord will be able to recover, in part, at least, from the injury which it has sustained. Experience has shown that in a certain proportion of cases of injuries of the spinal cord much may be done, though in others all the surgical knowledge and skill which we now possess are insufficient to do any good.

16. **Operations for Abdominal Wounds.**—An analysis of the first 500 operations for abdominal war wounds is made by the authors. They emphasize the fact that statistics are fallacious; they may show but little difference in the mortality of a series operated on four hours after wounding and another in which eight or nine hours have elapsed. The time element is of the highest importance; an abdominal patient's chances diminish with every hour of delay. The vast majority of patients reached the authors after nine or ten hours, and a large percentage in half that time, but a certain number of cases arrive at much later periods up to three or four days. The treatment of such late cases must be entirely different from the early ones. Every case must be judged on its own merits, but operation thus late has a very high death rate. A good working rule is that a man in fair condition who has been wounded more than thirty-six hours should always be watched, unless there is some clear indication that there is a condition which must be fatal without interference. The only complete contraindication to operation observed by the authors (apart from the condition of the patient) is a complete spinal lesion with paralysis. An almost complete contraindication is a wound of the chest definitely involving the lung (with hemoptysis or surgical emphysema). Such patients' chances are almost always better if left alone. Operation should be confined to such a rare case as where, with protruded viscera or otherwise, a hopeless abdominal condition can actually be seen, and in addition, for some reason, the patient's general condition is reasonably good.

18. **Tubercle Bacilli in Cervical Gland Tuberculosis.**—The number of cases of cervical gland tuberculosis examined bacteriologically by Griffith now is 102. The figures show that in childhood cervical gland tuberculosis is caused more frequently by the bovine than by the human type of tubercle bacillus, nearly three quarters (72.1 per cent.) of the cases in children under 10 years of age having yielded bovine tubercle bacilli. In persons over 10 years of age infection of human origin is more common; bovine infection accounting for about a third of the cases in the 10 to 20 years age period, and for rather less than a fifth of the cases in persons over 20 years of age. The material used in this investigation of cervical gland tuberculosis has been derived mainly from cities and towns in England and Scotland, and, while the cases from the different localities are too few for comparative statistical purposes, it is noteworthy that a proportion of the cases from each center of population has yielded tubercle bacilli of bovine type. If the figures for the whole of England are compared with the combined figures for Scotland, it is found that the proportion of bovine infections in children under 10 years of age is about the same for the two countries. In persons over 10 years, on the other hand, the proportion of cases in which the infection was bovine is much higher in the Scotch than in the English series.

19. **Isolating Meningococcus from Cerebrospinal Fever.**—The meningococcus was obtained by Neave from the cerebrospinal fluid by cultivation in thirty-six out of fifty-five cases, where it was seen in the purulent sediment of the fluid. In one case no organism was seen in the fluid, but a cultivation was successful. In one case no organism was found in the first place, but a cultivation was obtained from the fluid during a relapse a month later. In ten cases the organism was not found, and where the probabilities of a positive diagnosis lay in the clinical tests for meningitis generally, the cytology of the fluid and the clinical symptoms. In one case, while the fluid was clear and no organism was found in it, it was found in a throat swab. An excess of lymphocytes was found several times in a clear fluid that later became purulent. In one case the meningococcus was found alive in the fluid after it had been in the incubator for twenty-three days, but as a rule the organism was very difficult to keep alive on any medium more than half that time. It was found that the fluid for diagnosis drawn from the cisterna magna after death gave better information than that from the lumbar region both in the case of cerebrospinal fever and tuberculous meningitis.

20. **Treatment of Scabies and Common Skin Affections.**—The important points in dealing with cases of scabies, Adamson says, are (1) to make sure of the diagnosis, if possible by finding an acarus; (2) then to carry out a very thorough treatment for a strictly limited period. Doubt in diagnosis often leads to ineffectual treatment; treatment ineffectual but too long continued leads to eczema or sulphur dermatitis and still further confuses the diagnosis. The simplest and most efficacious treatment is to make use of soap and sulphur as follows: saponis mollis, 24 ounces (700 gm.); ung. sulphuris, 24 ounces (700 gm.), enough of each, soap and ointment, for three applications. A hot bath of half an hour's duration is taken on three consecutive days. During the bath the body and limbs, especially the hands and wrists and buttocks are scrubbed with soft soap by a flesh brush. After each bath the patient himself rubs in the ointment and puts on an old sleeping suit, gloves and socks and goes to bed, where he remains until it is time for the bath on the next day. The baths and inunctions must on no account be continued beyond the three days. The patient gets up and dresses after the three days and usually requires no further treatment, but is kept under observation for another three days. If, as sometimes happens, some itching continues he is given the following lotion to mop on night and morning:

	gm. or c.c.	
Liq. picis carbonis	4	fl ʒ i
Aquae	600	fl ℥ xx

If the treatment has been thoroughly carried out the patient is cured and free from infection after the three baths and inunctions. If a case is not cured in this way, it is probably not scabies, but either a papular urticaria or chronic eczema. For ringworm Adamson uses the following ointment:

	gm. or c.c.	
Acid. benzoici	1	gr. xv
Acid. salicylici	1	gr. xv
Ol. cocois	12	ʒ iii
Petrolati ....ad	30	℥ i

In cases in which there is vesication the inunction should be preceded by fomentation with hot water. Many cases quickly clear up with this treatment, but sometimes part of the eruption in the groin, or between the toes, or on the soles remains obstinate, and for these cases a useful treatment is: First thoroughly mop the affected parts with tincture of iodin, then rub on argenti nitratis 10 grains (0.6 gm.), spiritus etheris nitrosis 1 ounce (30 gm.). Repeat this treatment if necessary and apply the benzoic acid ointment betweenwhiles.

23. **Disappearance of Carcinoma of Cervix.**—A woman, aged 45, had her left breast amputated for cancer in 1914. In July, 1916, symptoms of uterine cancer appeared, and also nodules developed in the operation scar, with offensive vaginal discharge tinged with blood, obstinate constipation and vomiting, painful and difficult micturition, and pain in the left sciatic nerve area. She was too weak to stand another operation so extensive as hysterectomy, hence palliative treatment combined with enemas and vaginal douches was all that was done. She has steadily improved. The nodules in the scar disappeared in September, there was nothing abnormal in the cervix, and the uterus is now freely movable. Also the constipation and vomiting have quite ceased. She has still pains in the left sciatic nerve area, and is exceedingly thin. She sits up in a chair daily.

24. **Sarcoma of Fourth Ventricle.**—A girl, aged 14, was admitted to the hospital with a history of having had meningitis some months previously. Apparent complete recovery from the meningitis occurred, but since that time the patient had occasional periods, lasting a few days, during which she appeared to be in a state of coma. In the intervals she appeared to be practically normal, and at no time was there headache, vomiting, paralysis, or any physical sign suggesting the presence of tumor. Death occurred about three weeks

later during one of the spells of coma. At the necropsy there was found a soft tumor about the size of a large walnut, apparently originating in the valve of Vieussens and separating rather widely the two lateral halves of the cerebellum. There was no definite pressure on the floor of the fourth ventricle, and the lateral ventricles of the brain were not distended. The tumor showed several comparatively large recent areas of hemorrhage within it. In structure it was, histologically, a small round-cell sarcoma. There was no visible stroma and no gliomatous elements. The cerebral and cerebellar tissues were normal in structure and all the other organs of the body were normal.

Annales de Gynécologie et d'Obstétrique, Paris

November-December, 1916, LXXII, pp. 321-384

26 *The Surprises of Exploratory Curetting of the Uterus. M. Muret.—p. 321.
27 Necrobiosis of Retained Portion of Placenta. (La nécrobiose placentaire. Contribution à l'étude des prétendus polypes placentaires.) E. Zarate (Buenos Aires).—p. 343.
28 *Hernia through the Vagina. (La hernie vaginale.) H. Hartmann.—p. 351.
29 Partitioning Off of the Pelvis and Thread Drainage. (Le cloisonnement et le drainage filiforme du bassin, et leurs variétés.) H. Chaput.—p. 358.
30 *Advantages of Lumbar Puncture of the Fetus during Breech Presentation to Save the Child. M. R. Costa (Pavia).—p. 367.

26. **The Surprises of Exploratory Curetting in Diagnosis of Uterine Cancer.**—Muret comments on the baffling cases in which the curet brings evidence of malignant disease but then further curetting and even microscopic examination of the uterus removed soon after fails to reveal a trace of cancer. In one of the four cases of this kind which he reports the curet brought scraps of an unmistakable adenoma-papilloma-carcinoma of the body of the uterus. The uterus was removed but then, even with the microscope, it was impossible to find a trace of carcinoma in the organ. Two years later a tumor developed in the left ovary of exactly the same structure as the scraps curetted from the uterus. It was evidently a metastasis, and the patient succumbed to the malignant disease. The microscopic examination had been made at a two years' interval, and by different pathologists, the concordance between their reports on the histologic structure of the growths thus confirming Muret's view as to the metastasis. Even one case of this kind should convince the most skeptical of the possibility of the curet's scraping out entirely an incipient carcinoma; even a nonpedunculated tumor. Muret cites others who admit the possibility of this occurring. In another case in his experience, the exploratory curetting gave positive findings but nothing malignant could be found in the extirpated uterus at first. Renewed search finally revealed unmistakable signs of malignant disease. This case teaches that negative findings are not conclusive unless microscopic sections have been examined from all parts of the uterus. In another group of four cases from the literature and one in Muret's practice, the positive curet findings were not followed by removal of the uterus, and yet the patient has had no further signs of trouble. It is theoretically possible that the curet actually removed every scrap of the tumor; this is possible with a polypoid tumor or other small superficial growth. But this is so exceptional, and the fact that a clinical cure is not always an anatomic cure, imposes the necessity for removal of the organ with any suggestion of malignant disease. At the same time, he emphasizes that it is useful for physicians to know that such cases can occur, so that they will not think they had made a mistake in their previous diagnosis. In another group of cases, of which he relates an example, the most painstaking curetting failed to reveal the presence of cancer but, the severity of the symptoms having compelled hysterectomy, unmistakable malignant disease was found at some point that had escaped the curet. His patient was a woman of 42 who had borne two children. There were two foci of cancer, and both had developed at such a depth in the wall of the uterus that the curet gave no signs of their existence.

28. **Vaginal Hernia.**—Hartmann compares with the few cases on record of what is generally called pudendal hernia, a case of true vaginal hernia in a woman of 30. Eight years before she had had the perineum lacerated at the birth of her first child, and this had been followed by supposed genital prolapse requiring operative treatment. The supposed prolapse recurred at a second pregnancy and again at the third, and it was found that the trouble was a hernia in the pouch of Douglas, the lax vaginal walls permitting the tumor to protrude from the vulva. The trouble then was easily corrected by reducing the bowel and taking two stitches to close the pouch of Douglas on a level with the uterine cervix. The woman has passed through another normal pregnancy since but forceps were required. In all the cases on record of vaginal hernia, plastic operations to correct the supposed genital prolapse had proved ineffectual to ensure a permanent cure. The vaginal enterocele developed anew after anterior fixation of the uterus; or after this and anterior colporrhaphy. The anterior fixation of the uterus may possibly have contributed to favor the sliding down of the intestine into the pouch of Douglas.

30. **Lumbar Puncture of Fetus with Breech Presentation as Aid to Safe Delivery.**—Costa's favorable experience with this measure has already been described in The Journal, Oct. 14, 1916, p. 1190. He does not aspirate the fluid; it spurts spontaneously as the head is compressed. He regards this measure as indicated when there is danger to apprehend severe compression of the head with pelvic presentation with insufficiently dilated os or deformed pelvis.

Bulletin de l'Académie de Médecine, Paris

January 16, LXXVII, No. 3, pp. 63-101

31 Prophylaxis of Diphtheria in the Schools. E. Mosny.—p. 66.
32 *Extensive Resection for Chronic Ulcer of the Stomach. Témoin.—p. 75.
33 The Medical Department of the Army at Far Eastern Firing Line. (Fonctionnement du Service de Santé à l'armée d'Orient.) Picqué.—p. 84.
34 Improved Technic for Roentgen Localization of Projectiles. (Nouveau compas localisateur chirurgical à réglage direct sous l'écran radioscopique.) J. Abadie.—p. 86.
35 The Ear Reactions in Aviation. (Les réactions de l'oreille chez les aviateurs pendant les Vols.) P. Lacroix.—p. 84.
36 *Apparatus for Treatment of Myopia. Bacchi.—p. 97.

32. **Chronic Gastric Ulcer.**—Témoin analyzes the clinical picture and outcome in 186 operative cases of chronic ulceration in the stomach. The return of symptoms after gastroenterostomy or meager resection was of such frequent occurrence that he now makes a practice of extensive resection. He expatiates here on the numerous and important advantages of thus doing away with the entire diseased area and its possible complications later, while the stomach is left a vertical canal which cannot breed intoxication. The outcome has been most satisfactory in every one of the 117 cases in this class. He adds that the technic he describes is free from danger. The stomach must be released from all adhesions. Another feature of his technic is that he loosens up the vessels from the stomach wall before resecting it, leaving the vessels intact; they are easily detached from the wall, rubbing them loose with a compress.

36. **Mechanical Treatment of Myopia.**—Bacchi gives an illustrated description of an apparatus which exerts pressure directly on the eyeballs, aiming to shorten and widen them. He describes favorable experiences with it, the myopia being materially improved after a few sittings at all ages.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 20, XLVII, No. 3, pp. 65-96

37 *Serotherapy of Acute Febrile Jaundice. (Zur Serumbehandlung der Weil'schen Krankheit—Spirochaetosis icterohaemorrhagica Inada.) Inada, Ido, Hoki, Ito and Wani.—p. 65.
38 *Electrotherapy in Heart Disease and Arteriosclerosis. (Behandlung von Herzkrankheiten und Arteriosklerose mit Kondensatorströmen.) H. Weber.—p. 73.
39 *The Reflex-Eliciting Zone for the Cremaster Reflex. A. Rodella.—p. 85.

37. **Serotherapy of Acute Febrile Jaundice.**—This article brings down to date the research of these Japanese investigators. The immune serum they use is from the horse; 0.01 c.c. protects a guinea-pig against 1 c.c. of a pure culture (ten spirochetes in one microscopic field), injected at the same

time into the peritoneum. The serotherapy has been applied in thirty-five clinical cases; 50 per cent. were severe cases. The results showed that the serum in doses of 40 or 60 c.c. destroyed the spirochetes in the blood in from five or six to twenty-four hours. The mortality was 11.4 per cent. It had previously averaged 30.6 per cent. in this clinic, and elsewhere in Japan 40 or 48 per cent. The various findings are tabulated, but the most conclusive testimony as to the value of the serotherapy is afforded by the case of a man of 65 taken suddenly ill. The fourth day sixty-five spirochetes were found on one cover glass, in seventy microscopic fields. Then 17 c.c. of the immune serum was injected subcutaneously and 20 c.c. intravenously five hours later. Two hours after this no spirochetes could be found on repeated examination every two hours. A guinea-pig inoculated the fifth hour with 2 c.c. of the patient's blood has shown no signs of illness during the ten days since. Inoculation of another guinea-pig the twelfth hour with 3 c.c. of blood has also been negative. The results in this case confirmed in every respect the results obtained in the experimental research on guinea-pigs.

38. **Electrotherapy of Heart Disease and Arteriosclerosis.**—Weber remarks that with electrotherapy we are now realizing results unachievable with repose and digitalis alone in heart disease and arteriosclerosis, and not even when supplemented with massage, gymnastics and carbonated baths. The electric current has long been utilized in strengthening subnormal muscles, and failing compensation is nothing but muscular insufficiency. The same can be said of the walls of the vessels, and Weber cites a recent writer to the effect that electricity in the form of the interrupted current is an actual specific against vascular disturbances, relieving spasms, and transforming paresis to normal conditions. Weber prefers what he calls the condensator current, and reports here nineteen cases in which he treated patients with cardiovascular trouble with this form of galvanic electrotherapy. Lost compensation, an extremely irritable nervous system, and contracted kidney are about the only contraindications. He tests the heart functioning by having the patient hold his breath in the midst of quiet breathing. Figures below thirteen or fifteen seconds strongly suggest insufficiency of the heart musculature. Another test is the difference between the pulse reclining and standing. If the heart is working normally, the pulse becomes slower after a change from the vertical to the horizontal position. His third test is Herz' auto-inhibition, that is, the patient slowly flexes his right arm at the elbow, and then extends it again, concentrating his entire attention on the procedure. The pulse before and after shows little difference if the heart is sound, but with myocardial disease the pulse is materially retarded. With nervous heart affections, on the other hand, it is much accelerated.

39. **The Cremasteric Reflex.**—Rodella relates that in about 30 per cent. of the persons he has examined, the cremasteric reflex could be elicited by stroking the sole of the foot, the same as with the usual technic. The proportion of cases is still higher in which it could be elicited in this way on one side alone. This plantar cremasteric reflex was most pronounced in patients with sciatica.

Medizinische Klinik, Berlin

December 31, 1916, XII, No. 53, pp. 1385-1392

40 War Wounds of the Knee. (Erfahrungen uber Kniegelenkschüsse, insbes. uber primare *Gelenknaht.*) H. Klose.—p. 1385.
41 *Tincture of Iodin in Treatment of Erysipelas. W. Keppler.—p. 1387.

41. **Tincture of Iodin in Treatment of Erysipelas.**—Keppler asserts that a 10 per cent. solution of iodin generally has a prompt and certain curative action in erysipelas, as he has proved by ten years of experience in a septic ward. He calls attention further to the fact that during his entire service in the field since the war began he has encountered only one case of erysipelas, and none at all have been encountered by other surgeons of whom he has enquired. He suggests that the custom of prompt iodin treatment of the wounds may be responsible for this rarity of erysipelas. It is the rule to paint the region around the wounds anew with tincture of iodin each time the dressings are changed.

Münchener medizinische Wochenschrift, Munich

December 12, 1916, LXIII, No. 50, pp. 1749-1784

42 *War Diet Advantage for Some Children between Two and Six. (Kleinkinderkost im Kriege.) M. Pfaundler.—p. 1749.
43 *Lumbar Puncture in Treatment of Epidemic Meningitis. F. Riedel.—p. 1751.
44 *Treatment of Nephritis. H. Machwitz and M. Rosenberg.—p. 1752. Continuation.
45 Staphylococcus Vaccine Therapy of Furunculosis. Doctor.—p. 1755.
46 *Medical Examination of Candidates for Matrimony. (Aertzlicher Ehekonsens und Eheverbote.) Trumpp.—p. 1756.
47 *The Hypophysis As Regulator of Diuresis and of the Specific Gravity of the Urine. H. Bab.—p. 1758. Commenced in No. 48.
48 Artificial Arms and Legs under Muscular Control from the Stumps. (Weitere Fortschritte in der Verwendung willkürlich beweglicher Prothesen fur Arm- und Beinstümpfe.) F. Sauerbruch.—p. 1769; (Neue Wege zur Schaffung aktiv beweglicher Prothesen der unteren und oberen Extremität.) H. Plagemann.—p. 1772.
49 Training in Pronation and Supination for Long Stump of Forearm. H. Spitzy.—p. 1770.
50 *Nephritis in the Field. E. Magnus-Alsleben.—p. 1774.
51 "Five-Day Fever." (Zur Kenntniss des Fünftagefiebers.) W. Thorner.—p. 1775.
52 Malaria Dangers and Their Prevention. W. Wick.—p. 1777.
53 *Simplification of Operation for Inguinal and Scrotal Hernia. (*Methoden zur Vereinfachung der Radikaloperation der indirekten* Leistenhernien und Leistenhodenbrüche.) Hoepfl.—p. 1777.
54 Injuries from Air Torpedoes. (Verletzungen durch das Lufttorpedo.) G. Kelemen.—p. 1778.
55 Cuff to Correct Paralysis of the Flexor Digitorum. (Eine Faust*schlussmanschette.*) E. *Kröber.—p. 1778.*
56 Support for Flatfoot. (Ein Fussstutzriemen für plattfussleidende Soldaten.) W. Wolff.—p. 1779.
57 Hammock Bed. (Neues Feldbett für Heereszwecke.) Hunte*mueller.—p. 1780.*
58 Hygiene of Field Latrines. (Zur Hygiene des Stellungskrieges. II.) K. Hannemann.—p. 1781.
59 *Spiral Springs to Drain Fistulas. D. Sarason.—p. 1782.
60 *Micromethod for Determination of Albumin Content of Urine. E. Deiters.—p. 1782.
61 Indemnity for Traumatic Neuroses. (Die Versorgung der funktionellen Kriegsneurosen.) Hoche.—p. 1782.

42. **The War Diet and the Children.**—Pfaundler shows that the food now available for children between 2 and 6 conforms closely to the diet that has long been advocated as an auxiliary means to correct inherited taint and ward off spasmophilia, etc.

43. **Lumbar Puncture in Meningitis.**—Riedel reports the prompt and complete recovery of four out of five soldiers with epidemic meningitis treated with lumbar puncture and withdrawal of enough fluid to restore the pressure to normal, repeating this daily as long as necessary, changing the site each time. No by-effects were noted, but the disease ran its usual four or five weeks' course. His experience has convinced him that the abnormal pressure is the most serious factor in the symptoms. In one case he repeated the puncture eighteen times. At the tenth day the pressure was still 410 mm., but then soon dropped to normal.

44. **Treatment of Nephritis.**—This communication from Umber's clinic gives the minute details of several cases of edematous nephrosis to show the prompt benefit under restriction of salt and water. The article is to be continued.

46. **The Physician and the Marriage of the Unfit.**—Trumpp insists on the necessity of a medical examination for candidates for matrimony, and outlines a plan to render it feasible. He also outlines a campaign for educating the public to the necessity of getting married and raising good families, paying more attention to physical and mental qualities than to name and fortune, and emphasizing the evils from marrying a mate physically or mentally below par.

47. **The Hypophysis as Regulator of Diuresis.**—Bab states that his experimental and clinical research has confirmed the assumption that the flow of blood through the kidneys, and hence the diuresis, are influenced by hormones from the glands with an internal secretion. The hypophysis seems to act as a central station, so far as the physiologic functions of the urogenital system are concerned, regulating this hormone action. When this regulator is working inadequately, pathologic polyuria is liable to develop, as in diabetes insipidus. Subcutaneous injection of extract of the posterior lobe of the hypophysis restores to normal the inadequate regulating

function, and the pathologic polyuria subsides, while the specific gravity rises and the general health improves. By the mouth, the extract has no action, and its effect lasts only while it is in the system, no durable action being apparent. Tests with extracts of other glands showed them to be inert in this respect. The hypophysis extract modifies the concentration of the urine not only in diabetes insipidus, but also in other affections. He adds that in diabetes insipidus the kidneys are to be regarded as sound, because as soon as normal functioning is restored, they behave in every respect like sound kidneys. Injury of the hypophysis in animals entails polyuria. This is not observed with injury of any other of the ductless glands, but suprarenal extract is also able to increase the specific gravity. In Addison's disease, the hypophysis is intact and thus presides over the diuresis, preventing polyuria notwithstanding the destruction of the suprarenals, the hypophysis being evidently the commanding officer. The direct or indirect participation of the hypophysis in affections with a tendency to retention of water (dropsy, hydrocephalus and hydramnion), calls for further study. He suggests that as the diuresis-regulating function of the hypophysis seems to work automatically and always along the same lines, it might be possible to utilize persons with pronounced diabetes insipidus for standardization of hypophysis extracts. Bab is assistant at the second university gynecologic clinic at Munich, and he reports a number of cases of diabetes insipidus and also of adipose-genital dystrophy to illustrate the action of the hypophysis extract.

50. **Nephritis in the Soldiers on Active Service.**—Magnus-Alsleben says that the nephritis in question is proving to be merely the familiar acute glomerular nephritis with a tendency to edema, such as we see after scarlet fever. Experience has shown further that moving is bad for these cases, and now they are kept at the one hospital till cured. About half the men had a high blood pressure, 150 to 180 mm. mercury, but recovery was complete at last, except that the urine still showed a little albumin, a few casts and a few red corpuscles. These findings in the urine kept up even after two or three months' quiet in bed, with exacerbations in a few cases. Aiming to spare the diseased partial function, the amount of fluids allowed was calculated strictly according to the output of urine, and the nitrogen and salt in the food were materially restricted, although the supply of calories was ample. The favorable influence of this function-sparing diet was remarkable. Copious diuresis soon set in, without other measures, and the blood pressure dropped to normal. In the last fifteen cases he gave the men absolutely nothing to eat or drink for three or four days and then let them drink copiously. This is Volhard's method of treating nephritis in soldiers; he claims that a flood of diuresis follows and the blood pressure drops at once. But Volhard's assertions were not confirmed in his experience. The flood of diuresis did not always follow, and when it did appear, the blood pressure did not always decline, so that the results were disappointing and this method is now abandoned.

53. **Improved Technic for Hernia Operations.**—Hoepfl remarks that the war has made it necessary to operate in large numbers of cases in which in ordinary circumstances operative measures would never have been required. His extensive experience with indirect inguinal hernias has shown that considerable advantages result when the hernial sac is slit crosswise and the lower half is left. He does not draw the hernial sac out, but pushes aside the tissues around and incises the hernial sac about on a level with the anterior inguinal ring, aiding reduction of the contents of the sac by raising the pelvis. The side ends of the incision are then drawn apart with forceps which brings up the posterior wall of the hernial sac in a transverse fold, which is then slit its entire length. The proximal and the distal cut edges are then seized and raised with forceps, and the upper half of the hernial sac is then separated from all adhesions down into the internal inguinal ring. It is sutured to close it, and it is then allowed to slide back; the operation is completed with Bassini's or Girard's technic, leaving the lower half of the hernial sac unmolested throughout. For congenital hernia with intra-abdominal testicle, the invagination method has given best results, as he describes in detail.

59. **Spiral Spring for Fistula Drain.**—Sarason comments on the difficulty in inserting a tampon to drain a winding fistula, and also the disadvantages of a stiff rubber drain. He has found extremely useful for the purpose a finely twisted wire spiral spring. This adapts itself to the fistula, while there is nothing to obstruct the outflow of secretions. The end is provided with a floor, so that it will hold a guide, and can thus be readily introduced into the narrowest fistulas, ensuing keeping them open to the air.

60. **Micromethod Test for Albumin in the Urine.**—Deiters relates that the findings are more distinct when a small amount of urine is used, as he describes. An ordinary test tube is heated until the rounded bottom can be pushed in to make a small ball-shaped or conical depression in the lower end of the test tube. This can be treated with six or eight drops of nitric acid and the urine poured on top as usual. The turbidity resulting is more distinct than with the ordinary technic, as more light gets to the fluid in proportion to the amount of the fluid. The findings are distinct, even at 1 : 200,000.

Wiener klinische Wochenschrift, Vienna

December 21, 1916, XXIX, No. 51, pp. 1611-1642

62 *Parenteral Injection of Albumin. (Beitrage zur Proteinkorpertherapie.) W. Weichardt.—p. 1611.
63 Malformed Ears and Eyebrows as Signs of Degeneracy. (Die Bedeutung der Ohrmuschel und der Augenbrauen, sowie anderer Abnormitaten fur die geistige Beurteilung eines Menschen.) S. Suchy —p. 1614.
64 Traumatic Neuroses and War Hysteria. E. v. Nesnera and E. Rablorzky.—p. 1616.
65 *The Precipitation and Wassermann Tests after Supposed Abortive Treatment of Syphilis. A. Perutz.—p. 1619.
66 *Prophylaxis of Venereal Diseases. (Zur Bekampfung der Geschlechtskrankheiten.) H. Hecht.—p. 1622.
67 *Study of Bergell's Reaction. G. Raudnitz.—p. 1623.
68 *Improved Technic for Percussion and Auscultation. J. Tornai.—p. 1625.
69 *Jaundice in Soldiers. (Zur Frage der Gelbsucht an der Front.) B. Schwarzwald.—p. 1639. Conclusion.

62. **Parenteral Injection of Albumin in Therapeutics.**—Weichardt here reports further laboratory research on the principles of what he calls "protein body therapy." He gives a brief historical review of the work that has been done by himself and others in this line, and emphasizes the practical importance of the exactly opposite action of small and large doses of the parenterally introduced protein substances. Bessau has recently pointed out that the favorable therapeutic action in infectious diseases corresponds to Pfeiffer's old conception of means to increase the resisting powers. R. Pfeiffer declared that many kinds of interventions in acute infections induced an immediate increase in the resisting power. Bessau further insisted on the importance of inflammatory processes in the cure of infectious diseases. Weichardt has been studying the action of the higher molecular products of the splitting of albumin, as they act on isolated organs and systems of organs, either increasing their functional capacity or reducing it. He has tested them on the isolated heart of the frog, also in the test tube, and gives a number of charts showing the action of a 0.005 per cent. solution of a blood clot, filtered. The results showed that the blood-producing system can have its chemical functional capacity (*chemische Leistungsfahigkeit*) materially increased by minimal doses of albuminoid substances, and also by other substances. This probably is the explanation for the improved functioning under injections of salt solution to which Engländer has recently called attention as a therapeutic principle. Weichardt reports further the action of succinimid in this line; under its influence the paralyzing products of metabolism seem to be destroyed more rapidly. He calls the substances, including succinimid, which act in this way "retardins," as they retard the fatigue process. The whole comes under the general biologic law of activation of protoplasm, and he is convinced that this plays an important part in the living organism. In respect to the practical application of this protein body therapy in the clinic, he warns that in his experiments with intravenous or subcutaneous introduction of the albuminoid sub-

stances, he frequently noted in animals the development of a chronic condition of cachexia, the weight progressively declining and the temperature showing slight fluctuations. Some of the animals threw off the cachexia finally but others died. The cachexia-inducing property of the parenterally introduced albumin products seems to be connected with their constitution. Dold as well as Weichardt has called attention to this "proteinogenous cachexia."

65. **Serodiagnosis of Syphilis.**—Perutz tabulates the findings in fifty cases of recent syphilis tested repeatedly with the Porges-Herman-Perutz precipitation test and also the Wassermann test, before, during and after the so-called abortive treatment. The data show that the course of treatment never actually aborted the syphilis whenever these tests still elicited a positive reaction, even although no symptoms of syphilis could be detected at the time. The syphilis progressed also in all but one of the nineteen cases in which the precipitation test was positive, although the Wassermann was negative. But in fourteen cases in which both tests were negative there have been no manifestations from the syphilis since. His findings show further that the precipitation test reveals generalization of the syphilis at a much earlier stage than is possible with the Wassermann test. It is positive also in a much larger proportion of cases in the primary phase of the disease. A negative Wassermann before starting treatment is no guarantee that the abortive course is destined to cure the disease, and it does not guarantee that the syphilis is not already generalized. The most favorable conditions for successful abortive treatment are when both the precipitation and the Wassermann tests fail to elicit a response.

66. **Prophylaxis of Venereal Diseases.**—Hecht writes from barracks near Prague that the custom of giving the men a brief leave of absence just before they set out for the front is responsible for the fact that when they return they have to go to the hospital instead of starting out on the long march. He insists that leave of absence for a visit home should never be granted to a man who has acquired venereal disease during his service or who is still in the first years of the disease. It is fortunate, he says, that the military authorities have it thus in their power to prevent the man's infecting his family. In his corps, records are kept now of every man with venereal disease, and a certain mark opposite the name of a man on the register indicates that in no circumstances is he to be granted home leave. This seems cruel, but in the long run it is kind. This restriction of home leave is already enforced for typhoid carriers. Hecht adds that no one seems to class the venereal diseases with infectious diseases, but this neglect to apply the measures that have been found reliable with other infectious diseases will avenge itself sooner or later.

The number of syphilitics in the army now must certainly be several hundreds of thousands. They are being treated in hospitals, while sound and healthy men are being shot down in their stead. This actually places a premium on sexual infection, for the healthy have no chance of a few months' respite in the hospitals from the fighting. The effect likewise is to spare the syphilitics while the sound get killed off. He suggests that the diagnosis should be the signal for sending the man to the front. This would have a deterrent effect; at present many prefer to take their chances with syphilis, rather than with the enemy's shells. It might be possible to form special companies of syphilitics, as soon as the ulcers have healed over, so that the treatment could be conveniently continued and applied on the firing line, while infection of other troops would be prevented. Neisser long insisted that courses of salvarsan and mercury could be given perfectly well in the trenches. Hecht declares that it is impossible to reiterate too often the frightful danger for the populace from syphilitics in the primary phase. They have many chances for infecting others in a garrison town, but on the firing line they are comparatively innocuous, and this from every point of view has its advantages. Since the war began, a total equivalent to sixty divisions have been temporarily withdrawn from the fighting for venereal diseases. In conclusion, he insists on the necessity for enlightening the public in regard to the danger of venereal disease in candidates for matrimony. He endorses Zinsser's suggestion that the daily papers should carry a big display advertisement something like this: "Beware of Sexual Diseases. Every young couple should mutually demand a certificate of good health before the wedding." He would like to render this certificate obligatory for all.

67. **The Bergell Reaction.**—The Journal described Feb. 6, 1915, p. 550, Bergell's copper sulphate urine test alleged to reveal a predisposition to diabetes even before it has actually developed. Raudnitz has applied the test to the urine of sixty-seven children and adults including nine children of a diabetic parent. The findings for all are tabulated. The index was high in febrile patients, but the children from diabetic families did not have a specially high index. Only six children from diabetic families were discovered among 15,000 Jewish refugees. Raudnitz is inclined to agree with Seegen that the supposed prevalence of diabetes in Jewish families is due to the fact that the Jews affected with it, or fearing it, flock to the specialists, while other classes of the population seldom go to the trouble and expense of a trip to the specialist or health resort.

68. **The Phonoscope.**—Two illustrations are given of Tornai's improved phonograph-stethoscope which magnifies the sounds heard on percussion and auscultation.

69. **Jaundice in the Troops.**—Schwarzwald says that the *Frontikterus* he has encountered so often is a mild, transient, almost secondary disturbance, occurring practically exclusively in men under the conditions of trench life. Troops under conditions permitting greater opportunities for respite and relief, did not develop this "firing line jaundice." Cases were rare also when there was active fighting. It seemed to be the monotonous trench life that predisposed it, superposed on the longing for home that became almost unbearable as the spring opened. In only seven of the fifty cases examined was there a history of severe fright from a shell explosion. This psychogenous jaundice seems to confirm the importance of nervous factors in the functioning of the liver.

Riforma Medica, Naples

1916, XXXII, No. 44, pp. 1201-1228

70 *Diagnosis of Cancer of the Liver. (Diagnosi dei tumori maligni del fegato.) A. Ferrannini.—p. 1201.
71 Tuberculous Meningitis Simulating Sclerosis in Patches. A. Camarata.—p. 1208.
72 Present Status of Diagnosis, Treatment and Prophylaxis of Typhus. U. Gabbi.—p. 1213.

No. 45, pp. 1229-1250

73 Action of Toxins of Fatigue on Certain Internal Organs. L. Ferrannini and S. Fichera.—p. 1229.
74 Poisoning from Asphyxiating Gases. P. Sisto.—p. 1234. To be continued.
75 Substitute for Salvarsan. (Sul Luargol. Il nuovo antisifilitico di Dauysz.) G. Pollio and C. Rubl.—p. 1238. Commenced in No. 44, p. 1205.

70. **Diagnosis of Cancer of the Liver.**—Ferrannini says that when it is difficult to decide whether the liver trouble is malignant or merely echinococcus disease, the age over 50 speaks in favor of cancer; also the sudden onset of intense pain in the liver region, the enlargement of the liver and discovery of hard bunches in it. Also the absence of eosinophilia and of leukocytosis in general, the reduction of nitrogen and increase in urobilin in the urine, the coexistence of stomach trouble, similar to what is observed with gastric cancer, although in fact the stomach may be entirely free from involvement in the malignant disease. The cancer is more liable to be a sarcoma than a carcinoma if there are no extra-abdominal metastases, no ascites and no jaundice.

Brazil-Medico, Rio de Janeiro

December 30, 1916, XXX, No. 53, pp. 417-424

76 *The Contradictory Facts in Regard to Antitoxin Treatment for Diphtheria. (Factos contradictorios sobre a sorotherapia antidiphterica.) O. Clark.—p. 417. Commenced in No. 50.—p. 394.

76. **Antitoxin Treatment of Diphtheria.**—Clark's statistics from various countries emphasize anew the vital importance of commencing treatment of diphtheria at the earliest possible moment. The early diagnosis is the main thing. He mentions parenthetically that at Rio de Janeiro diphtheria

is exceptionally mild and rare. Some statistics recently published, covering the last forty-six years, show an annual average of only forty-three deaths from diphtheria.

Acta Scholae Medicinalis Univ. Imp. in Kioto

1916, I, No. 3, pp. 283-411. German and English Edition. Last indexed August 5, 1916, p. 474

77 *The Chemical Composition of the Placenta. I and II. (Ueber die N-haltigen Extraktivstoffe der menschlichen Placenta.) T. Harada.—p. 283. (Ueber die Bildung von d-Milchsaure bei der Autolyse der menschlichen Placenta.) Id.—p. 291.
78 *The Chemical Composition of Ovaries. (Ueber Fermente in Corpora lutea der Kuhovarien und in der von den ersteren befreiten Ovarialsubstanz.) Y. Taniguchi.—p. 299.
79 *Physiologic Studies on Spermatozoon, Especially its Life Duration. S. Ochi.—p. 341; On the Life Duration of the Horse Spermatozoon outside of the Body. S. Sato.—p. 361. (In English.)
80 Behavior of Grape Sugar in Hen's Egg during Incubation. (Ueber das Verhalten des im Eierklar sowie im Dotter Vorhandenen Traubenzuckers bei der Bebrutung der Huhnereier.) G. Sato. —p. 375.
81 On the Effect of Osmotic Pressure. IV. The Relation between Osmotic Pressure and Electric Resistance of the Nerve. H. Tanemura.—p. 381. (In English.)
82 *Physiology of Osmotic Pressure. V. (Ueber den Parallelismus der Erregbarkeit und der Leitfähigkeit.) R. Shoji.—p. 395.

77. **The Chemical Composition of the Placenta.**—Harada describes his research on 120 freshly expelled placentas which resulted in the discovery of the presence in the placenta of xanthin, adenin, arginin, histidin, cholin, lysin, uracil, leucin, alanin, prolin, glutaminic acid, and possibly of hypoxanthin and phenylalanin. In a second communication he asserts that d-lactic acid is formed during autolysis of the human placenta.

78. **The Ferments of the Cow Ovary.**—Taniguchi reports that several ferments, which he enumerates, were found in the corpora lutea and also in the other parts of cows' ovaries, but several others which might have been expected were not detected.

79. **How Long Can Spermatozoa Live Outside the Body.**—Ochi experimented with the spermatozoa of white mice, studying the effects of physical and chemical stimuli on them, especially the effect of alkaline and acid solutions, of temperature, light, osmotic changes, the nonelectrolytes, the action of ions, of nitrogen, oxygen, hydrogen and carbon dioxid, and of changes in atmospheric pressure. The most favorable conditions for long survival were when the animal was mature and well nourished, and the spermatozoa were kept at room temperature (22.5 C. or 72 F.) in a 3.3 per cent. solution of dextrose. A 0.7 per cent. solution of sodium chlorid seemed to have practically the same effect. He ascribes it to the osmotic tension. Acidity at any concentration was found injurious, a 0.02 per cent. solution of hydrochloric acid arrested at once the movements of the spermatozoa.

Sato reports research with the spermatozoa of horses, saying that artificial fertilization has proved so successful in horticulture that florists can now send pollens to a distance for crossbreeding of plants. He adds—both Ochi and Sato write in English—"As to an animal, such a practice as this is not only so difficult but also religious and moral prejudices of the people have greatly hindered its progress in this line. Recently, however, religion has lost its influential power and the views on morality have become reveral. And many are making effort to improve national wealth and happiness from economical and military view points. Therefore the prejudice on the artificial fertilization of the animal has removed to some extent." He gives eighteen tables of details as to the various experiments made showing the length of the survival of the spermatozoa in various mediums and under different conditions. The moment when all active movements ceased was taken for the limit, but he found that application of warmth, when they had been kept at room temperature for five or six hours, sometimes revived part of them so that they resumed active movements, but this never lasted for more than thirty minutes at most. The most favorable conditions to keep them alive outside the body were found to be a temperature of 13 or 15 C. (55.4 and 59 F.) with an osmotic tension corresponding to a 5.2 per cent. solution of dextrose. In this solution the spermatozoa maintained active movements for from ten to thirty hours, to a maximum of seventy hours.

82. **Physiology of the Osmotic Pressure.**—Shoji discusses in this fifth report on his researches the parallelism between the excitability and the conducting power of a nerve. They do not seem to be two separate attributes of the nerve, but seem to be of the same nature.

Russkiy Vrach, Petrograd

1916, XV, No. 45, pp. 1057-1080

83 Patches of Atrophy of the Skin in Adult. (Poikilodermia atrophicans vascularis Jacobi.) V. I. Terebinsky.—p. 1057.
84 Congenital Absence or Retroperitoneal Location of Vermiform Appendix. (Vrozhdennoe otsutstvie cherveobraznago otrostka, etc.) A. M. Nikolsky.—p. 1061.
85 *Dietetic Treatment of Rachitis. I. A. Shabad.—p. 1067. Concluded.
86 Extension in Treatment of War Injuries of the Spine. (O traum. povrezhdeniakh pozvonochnika) S. M. Dukhovsky.—p. 1070.
87 War Wounds of the Skull. (Ognest. raneniakh cherepa.) M. S. Astroff.—p. 1074. To be concluded.
88 *Treatment of Cholera in Children with Intravenous Infusion of Saline. M. D. Tushinsky.—p. 1077.

85. **Dietetic Treatment of Rachitis.**—Shabad is in charge of the children's clinic at Petrograd where his extensive research on rachitis has been done. In this communication he gives the results of the mixed diet—with very little milk—advocated by Czerny-Keller, comparing the metabolic findings with those on a diet of unlimited milk and bread, both in periods with and without cod liver oil. The intake and outgo of calcium, phosphates and nitrogen during each period are also compared for each, several tables showing under ten headings the various findings under the test diets. All the testimony is in favor of unlimited milk with bread. The children assimilated and retained calcium better and gained in weight, and all the metabolic findings were more nearly normal on the milk *ad libitum*, and the benefit was still more pronounced when cod liver oil was given with it. The two children were not quite 2 years old, and the cod liver oil was given in a teaspoonful dose twice a day. The fact that the children seemed to do a little better on the Czerny-Keller mixed diet when cod liver oil was given with it shows, he declares, that this diet (241 gm. milk; 247 gm. soup; 512 gm. tea; 138 gm. bread; 85.5 gm. cutlet, and 332.2 gm. mashed potatoes in the course of the twenty-four hours), lacks essential therapeutic efficacy, while the children are unable to utilize it as well as plain milk and white bread.

88. **Intravenous Infusion of Saline in Cholera in Children.**—Tushinsky infused from 400 to 2,000 c.c. of a 6.5:1,000 solution of sodium chlorid, according to the age of the child, and thirty of the forty-four over 3 years old recovered. The four under 3 all died, and nine of the fourteen between 3 and 5. In these thirteen fatal cases in children under 5, all but three were in the algid phase when first seen. Other children with the severer form of cholera, not treated with these intravenous infusions, developed a hornlike dryness of the tissues, entailing superficial lesions. Nothing like this was observed in the infusion-treated children. The epidemic of cholera in question developed slowly until there were 654 cases, and then it suddenly died out. The hardships of the refugees were as severe as before; nothing had been changed in regard to the water supply, and there was no central water supply to be incriminated, as in classical epidemics of cholera at Hamburg and at Petrograd. The epidemic did not develop with many cases at once but spread slowly—a typical example of a contact epidemic, presupposing a protracted course. But, instead of that, after six or seven weeks the epidemic suddenly died out. Tushinsky thinks there is only one explanation possible for this course of the epidemic, namely, that so many persons had been vaccinated against cholera that the epidemic died out for lack of fuel.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

December 23, 1916, II, No. 26, pp. 2245-2320

89 *Cancer Mortality in the Netherlands. (Kankersterfte in Nederland.) H. T. Deelman.—p. 2251.
90 *Bile Pigments in the Urine. (Onderzoek op galkleurstoffen in de urine.) L. de Jager.—p. 2271.
91 *Congenital Absence of Hair with Atrophic Condition of Skin and Its Appendages in Boy of Five: Progeria. J. C. Schippers.—p. 2274.

89. **Cancer in the Netherlands.**—Deelman's statistics are presented in charts for ready comparison. The average mortality from cancer in the years 1909 to 1914 in the various towns and districts are shown in graded maps per 10,000 inhabitants. The range is from 4.5 to 16.6: 10,000. Only 4 per cent. of the deaths from cancer were in persons under 40. The range otherwise is from 23.5 to 52.5: 10,000 inhabitants over 40. He presents further statistics from physicians who have practiced continuously in one district with a steady population of about 24,000. One had eighty-six cancer cases, 1885 to 1889, and 168 in 1910 to 1914. A similar increase is apparent over the entire country; cancer is recorded as the cause of death in 80 per cent. more cases than twenty-five years ago. The data cannot be explained by assuming that in certain regions there are more elderly persons. The increase is a trifle less pronounced in the cities than in the rural districts, and in the regions at the mouth of the large rivers the increase is less than 50 per cent. Otherwise no connection between the lay of the land and incidence of cancer could be detected. He gives other charts which show that the relative proportions of cases of cancer of the stomach, liver, intestine, sexual organs and mamma, in both men and women, keep within a certain range throughout the different districts, showing comparatively little relative fluctuation. The conclusion from the whole study is that the increase in cancer in the last twenty-five years is real and not due to better methods of diagnosis. The northeastern provinces and cities have the highest and Limburg, the most southern province, the lowest cancer mortality for 10,000 inhabitants over 40, but the relative proportions of the organs involved are the same in both. Deelman remarks that the more radical treatment of cancer nowadays is curing so many cases that the time is approaching, if not already here, when the number of deaths from malignant disease will be no longer an index of the actual prevalence of cancer.

90. **Bile Pigments in the Urine.**—De Jager comments on the various inconveniences of the different technics in vogue for determination of the bile pigments in the urine, and describes two methods which he has worked out that he thinks are an improvement. The first is a modification of Gmelin's technic. The green ring at the zone of contact extends into the colorless fluid below, instead of up into the more or less naturally tinted urine. This renders the color reaction much more distinct and unmistakable, and this technic has still other advantages which he enumerates. He uses for 5 c.c. of urine two drops of a 0.5 per cent. solution of sodium nitrite. Then, on top of the urine, is poured a 5 per cent. solution of the ordinary dilute hydrochloric acid. If salt is previously mixed with the urine, the two fluids blend less readily. In his second method he utilizes the insolubility of the zinc compounds of bilirubin. The urine is treated with a few drops of zinc chlorid. The resulting precipitate is filtered out, and over it on the filter is poured a mixture consisting of 1 c.c. strong hydrochloric acid; 9 c.c. alcohol and two drops of a 0.5 per cent. solution of sodium nitrite. The first drops which filter through are yellow; then comes an emerald green fluid the tint of which persists unmodified even if more nitrite is added. The depth of the green tint depends on the proportion of bile pigment present. Larger amounts can be used, 10 or 20 c.c. of urine with five or ten drops of a 10 per cent. solution of zinc chlorid. This method is very sensitive, simple and convenient. Various modifications of these tests are described, to adapt them to different conditions.

91. **Progeria.**—Schippers describes a case of premature external senile conditions in a boy of 5. The skin is atrophied and pigmented, the few hairs left are grey, and some of the joints are abnormally prominent. He reviews the literature on the subject, his final conclusion being that the cause of progeria is still a mystery.

Upsala Läkareförenings Förhandlingar

XXII, Supplementary Number. pp. 1-408

92 *Differential Atmospheric Pressure and Intratracheal Insufflation of Air for Intrathoracal Operations. (Studier öfver tryckdifferensandning enligt Sauerbruch och öfver konstgjord andning —rytmisk luftinblåsning—vid intrathoracala operationer.) K. H. Giertz.—P. 1 to 257; (Om experimentella lungexstirpationer.) Id. pp. 1-[illegible].

92. **To Maintain the Respiration During Intrathoracal Operations.**—This bulky and handsomely illustrated number is entirely devoted to Giertz' research on the physiology and pathology of artificial respiration, especially with over and under differential atmospheric pressure, done at the Institute for Physiology of the University of Upsala. He reviews the history of attempts to control the atmospheric pressure, and the present status of our knowledge of the blood pressure in different arteries under normal and differential pressure, and under artificial respiration, illustrating the various points by reports of his experiments on animals and comparing them with experimental and clinical experiences of others, especially Meltzer, Auer, Tigerstedt, Møllgaard, Tiegel, Cloetta and von Rodhen. Eighty-one pages and eleven three-page tracings are devoted to the details of the findings minute by minute on human subjects, rabbits and dogs, under differential pressure methods. He relates that he soon saw that the whole system of differential pressure methods has one serious fault, namely, the reduction in the ventilation of the lungs. The differential pressure cabinet, he adds, by no means obviates all dangers when the thorax is opened, as Sauerbruch claims. On the other hand, Giertz' experiments of and tests with rhythmic insufflation of air showed that this is a reliable and effectual method of ventilation while it does not affect injuriously either the greater or the lesser circulation. All this research was preparatory to experimental operations on the lungs, which he describes in minute detail with thirty-two pages of photographic reproductions of the findings later. The literature on pneumectomy is also reviewed to date and various discrepancies are noted and some explained. He deplores the tendency of late to minimize the dangers of pneumothorax. In all operations on the lungs the main point is to keep up normal ventilation, and he declares that this research has confirmed and established that rhythmic insufflation is reliable and, when correctly applied, is harmless. He states that it is indispensable to have the cannula fit tight to the walls of the trachea. This can be realized by fastening an inflatable rubber bag around the laryngeal end of the intratracheal tube. The tube connected with this inflatable balloon, running along beside the ventilation tube, allows it to be inflated as soon as the ventilation tube is in place in the larynx. With the proper pressure provided for the insufflation air and a safety valve, the air previously warmed and filtered, all danger is obviated. The only disadvantage of this method is the necessity for introducing a tube into the throat, but with the Kuhn tube this is reduced to the minimum. Wide clinical experience with Kuhn's flexible tube has shown that it is quite free from danger. In opposition to this comparatively slight drawback, the method has two great advantages. The ventilation of the lungs proceeds and continues undisturbed, even with the lungs extensively exposed on both sides, and there is no danger of air getting into the stomach. This latter is liable to be directly fatal; when it occurred in Giertz' experiments it caused great inconvenience. He did not experiment much with the Meltzer-Auer technic but his impressions with it were so favorable that he says it is merely a matter for individual choice whether to use the ordinary rhythmic blowing in of air or the Meltzer-Auer method. Both provide ample and reliable ventilation without the subject's incurring new dangers. He had occasion a number of times to apply the rhythmic insufflation to save the life of the animal suffocating from the imperfect ventilation under the differential pressure procedure. He describes further the technic which he advocates for resection of the lung, the outcome in the nineteen dogs confirming its superior advantages. In conclusion he discusses the changes liable to occur inside the chest after an operation on the lung; they are almost all purely physical. The tissues adjust themselves to the conditions after the air left in the thorax has been absorbed, this forces the remaining lung tissue to expand more. Eight of his dogs that he left alive from four months to two years to date differ in no respect from ordinary dogs in aspect or behavior, but occasionally four of them cough, especially after pressure on the trachea. Other operations with the lungs exposed are reported on both dogs and rabbits.

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THE DIAGNOSIS AND SERUM TREATMENT OF ANTERIOR POLIOMYELITIS *

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In the treatment of the acute stages of poliomyelitis the application of immune serum from human beings who have recovered from the disease has been recommended by Netter,[1] who used such serum in a small series of cases. His conclusions were that the serum was beneficial in poliomyelitis. Later, Flexner and Lewis[2] carried out some experimental work in monkeys, and showed that the intraspinal injection of immune serum twenty-four hours before the intracerebral inoculation of a fatal dose of virus acted as a preventive against the disease.

On the basis of these results, the work with immune serum was taken up at the Willard Parker Hospital, at the Minturn Hospital and in the private practice of a number of physicians to whom the serum was supplied for treatment of suitable cases. It was soon realized that the cases in the preparalytic stage of the disease would be the most suitable for serum treatment, and that late cases with well developed paralysis and normal temperature would probably not be influenced by the administration of serum. The serum was also used, however, in cases in which the temperature was still high, the paralysis had developed in some parts, and was progressively involving other members of the body.

It was in the group of early cases, treated in the premonitory or preparalytic stage of the disease, that we could expect to obtain much more tangible results. If paralysis did develop after the use of serum, the following points were noted:

1. The number of doses and amount of serum used each time.
2. The group to which the serum belonged.
3. The number of days the patient had been ill.
4. The number of hours or days which had elapsed since the first dose of serum was given.
5. The degree of paralysis.
6. The rapidity with which the paralytic phenomena began to clear up.
7. The final result: recovery, paresis or paralysis, and the actual groups of muscles affected.

It was only by comparing a larger group of early cases treated with immune serum, with normal human serum, and with no serum at all, that we could hope to arrive at any certain data as to the efficiency of the serum treatment.

To help in the diagnosis of early cases, the following symptoms and findings in the spinal fluid were found of value. The macroscopic changes in the spinal fluid to be described cannot replace the more careful laboratory examination, but will be found of great value, especially where immediate laboratory facilities are not at hand, and the diagnosis of poliomyelitis has to be confirmed for purposes of isolation and treatment.

SYMPTOMS OF EARLY CASES

A certain group of symptoms have been found significant, especially if occurring during an epidemic, in the early stages of infantile paralysis. These symptoms are present in part or in whole in most of the cases. In addition to the history of exposure, which is especially important during an epidemic, we have: (1) fever; (2) hyperesthesia; (3) slight rigidity of the neck, with pain on forward traction, and occasionally a slightly positive Kernig's sign; (4) muscular tremors, irregular from fine to coarse, noticeable especially in the fingers and hands, but also apparent in the entire extremities; (5) weakness of the limbs, especially of the lower extremities, with early diminution or loss of the patellar reflexes; (6) headache; (7) nausea, vomiting and constipation or diarrhea, and (8) the character of the spinal fluid obtained by lumbar puncture in suspicious cases.

This fluid, with a few exceptions, is quite characteristic even in the early stages of the disease. There is a distinct increase in the total number of cells, from 20 to 600 or more. These cells are mostly lymphocytes, with a small proportion of large mononuclear and polynuclear cells. During the earliest stages of the disease there may be a transient relative and absolute polynucleosis. The chemistry of the fluid is also characteristic. There is an increased amount of albumin, globulin, and a substance which reduces Fehling's solution. Often on the surface of the spinal fluid, as it is being drawn into a test tube, a thin filament of fibrin appears, which breaks up into small flakes when the fluid is gently shaken. The diagnosis in a large percentage of cases can be established in the early cases during the acute stage of the disease, even before the laboratory examination of the spinal fluid, by noting a slight but characteristic opalescence to the fluid which gives a ground-glass appearance throughout the fluid when it is examined in a clean test tube by transmitted light. This appearance is caused by the increased number of white blood cells (lymphocytes), which can be distinctly seen with the naked eye, and still better with a pocket magnifying lens. The large number of lymphocytes appear as dustlike little specks uniformly

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* From the Research Laboratory and the Willard Parker Hospital.

[1] Netter, A.: Serotherapie de la poliomyelite nos resultats chez trente deux malades: indications, technique, incidentes possibles, Bull. de l'Acad. de méd., Oct. 12, 1915. Netter, A., and Salanier, M.: Bull. et mém. Soc. méd. d. hôp. de Paris, March 10, 1916.

[2] Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, Seventh Note, The Journal A. M. A., May 28, 1910, p. 1780; Eighth Note, Aug. 20, 1910, p. 662.

suspended in the fluid. These particles can be put into motion by a slight shaking movement of the test tube. A normal spinal fluid, or a poliomyelitis fluid which has been standing for a number of hours, and in which the cells have settled to the bottom, does not present this appearance unless the cells are distributed again by shaking. It looks limpid and gives the appearance of distilled water. The examination of the spinal fluid is best made in the dark room with the test tube held against an artificial light. It is not as accurate a test of cell increase as the exact count, but *is of great* practical value.

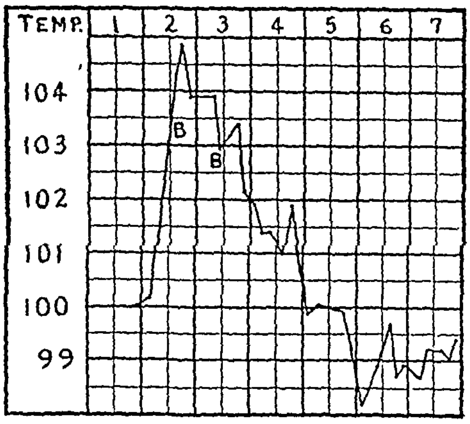

Chart 1.—Typical curve in preparalytic case of poliomyelitis in which immune serum was given and which ended in complete recovery: *B*, injection of 15 c.c. immune serum B.

Any bedside test by which cases of poliomyelitis can be diagnosed during the early stages is important both for purposes of isolation and for serum treatment. Several precautions must be observed in utilizing this test. First, there must be no red blood cells in the spinal fluid. Red blood cells, if only few in number, cannot be distinguished macroscopically by the appearance of the fluid, and the opalescence produced by these cells may be mistaken for that caused by white blood cells. When more numerous, however, the red cells are recognized by a characteristic yellowish shimmer to the fluid. A subsequent microscopic examination should, at any rate, always be made to exclude the presence of red blood cells. Second, white blood cells (lymphocytes and polynuclears) are found increased in the spinal fluid in a variety of other conditions, especially tuberculous meningitis, epidemic cerebrospinal meningitis, syphilitic involvement of the meninges and vessels of the brain, etc. The typical macroscopic ground-glass appearance of the fluid cannot, therefore, be of absolute, but is of great relative diagnostic value during an epidemic, if the precautions mentioned above have been observed.

In the later stages of poliomyelitis, generally after the seventh to tenth day, the cells in the spinal fluid rapidly diminish in number and soon reach a normal count. It is often important to establish the diagnosis of these later stages of the disease, especially when no paralytic phenomena have appeared after the attack. A simple and yet fairly accurate way of diagnosing these cases is to remove the spinal fluid by lumbar puncture and examine its albumin and globulin content. *For a period of from eight to ten weeks,* a majority of persons who have passed through an attack of poliomyelitis will show an increased amount of both these substances. This is strongly suggestive of an attack of the disease during an epidemic, especially with a history of some or all of the preparalytic symptoms of poliomyelitis.

Table 1 shows rather strikingly the persistence of the albumin increase (the globulin is generally in proportion to the albumin content) even as late as eight weeks after the onset of the symptoms. It is interesting to note that the maximum amount of albumin is found in a much larger proportion of cases during the second week rather than during the first of the disease. It is possible, therefore, to clear up the diagnosis of some of the abortive types of poliomyelitis even during the later stages of convalescence.

In addition to the ground-glass appearance of the fluid, which is a useful test to determine an increased number of cells and of value in the early stages of poliomyelitis, there is a second macroscopic test, of value both early and late in the disease. This is the so-called foam test, and depends on the pathologically increased amount of albumin and globulin in the spinal fluids in cases of poliomyelitis. When a test tube which is half filled with spinal fluid is thoroughly shaken, a persistent foam appears on the surface, which may last for half an hour to an hour or even longer. Compared with a normal spinal fluid, the foam *produced by shaking a fluid obtained from poliomyelitis* patients is much denser, finer, more voluminous and more persistent. Here, also, the presence of blood must be excluded before any definite deductions from this test are made.

The importance of getting a spinal fluid free from blood, which occasionally results from the lumbar puncture, is evident from the diagnostic value attached to the findings in a clear spinal fluid obtained from early and late cases of poliomyelitis. After using a variety of lumbar puncture needles, I have become thoroughly convinced that the needle for diagnostic puncture should not be larger than a No. 18 gage and not longer than 3 inches. Such a needle is easily handled, does not bend, and causes little trauma and very little pain. With the patient placed in the proper recumbent position, and the back properly arched, the needle is introduced almost vertically, but with a slight upward direction, in the median line between the third and fourth lumbar vertebrae on a level with the crest of the ilium. Anesthesia, either local or general, is, as a rule, unnecessary. When the child struggles considerably, and the examination of the spinal fluid is of great importance in clearing up the diagnosis, a light ether anesthesia for a few minutes is justifiable and indicated.

SERUM TREATMENT

The diagnosis in the early cases having been established by clinical symptoms and examination of the spinal fluid, the next step is to administer the serum into the spinal canal. It is here that the bedside confirmation of the diagnosis by the macroscopic appearance of the spinal fluid becomes most important. In cases in which the fluid indicates it, the serum can be promptly administered without any further delay for laboratory examination and without the necessity of another lumbar puncture, although the confirmatory laboratory examination can be made later.

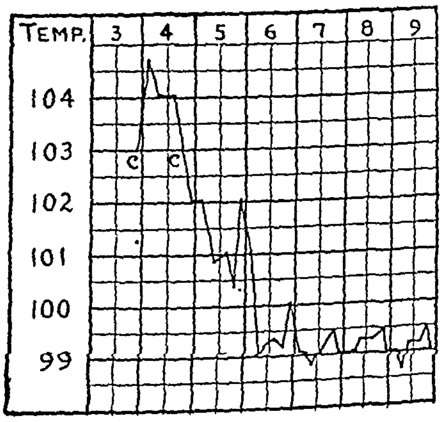

Chart 2.—Typical curve in preparalytic case of poliomyelitis in which immune serum was given and which ended in complete recovery: *C*, injection of 15 c.c. immune serum C.

Fifteen c.c. of the serum are injected by the gravity method after the removal of a slightly larger amount of spinal fluid. The dose is repeated every twenty to twenty-four hours until two or possibly three injections have been made. In the more severe cases, especially with an advancing involvement of the respiratory muscles, the serum should be given every twelve hours. In considering the frequency of the repetition of the dose, and especially of the interval of time between the injections, it is important to remember what is taking place in the cerebrospinal meninges after an injection of the serum. A marked polynuclear cellular reaction is produced, which probably should be given time to exert its full effect before the spinal canal is tapped again and the rich cellular fluid removed, for the administration of a second or third dose of serum. If, however, one delays the reinjection of the serum for forty-eight hours longer, there will be noticed a rapid clearing up of the artificially produced cellular increase in the spinal fluid. Considering this therapy as a possible nonspecific cellular stimulation obtained by the injection of a rich protein fluid, we would consider that an interval of from twenty to twenty-four hours between the injections is best; but it is fair to state that in three severe cases the readministration of the serum was made every twelve hours with apparently good results. The serum is rapidly absorbed from the spinal canal, so that the daily repetition of the dose is indicated, especially if the efficiency of the serum is considered as being based in part on its antibody content.

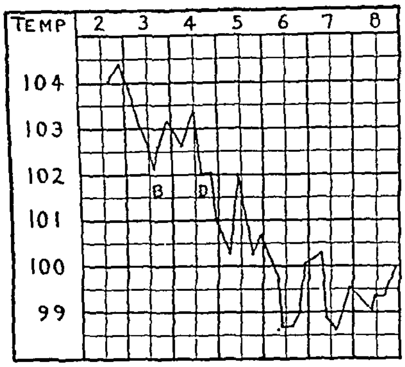

Chart 3.—Typical curve in preparalytic case of poliomyelitis in which immune serum was given and which ended in complete recovery: *B*, injection of 15 c.c. immune serum B; *D*, injection of 15 c.c. immune serum D.

SOURCE OF SERUM AND GROUPS OF IMMUNE SERUM

The immune serum used in the treatment of cases of infantile paralysis was obtained from convalescents and from immune donors who had had the disease from one to several years previously. For the sake of accuracy, and to facilitate the proper study of its action, the serum was classified into groups, according to the number of years which had elapsed since the immune donors had had the disease. It was important in choosing donors for immune serum to establish the fact that they had really suffered from infantile paralysis, and not to accept the diagnosis of the donor on his word, as cases of Bell's palsy, tuberculous disease of the bones and joints, hemiplegias, syphilitic and otherwise, could be found among such so-called immune donors.

The groups into which the serum was divided are:

Early convalescent serum, from two to six months after an attack.
Late convalescent serum, from six to twelve months after an attack.
Group A Serum, from one to five years after an attack.
Group B Serum, from five to fifteen years after an attack.
Group C Serum, from fifteen to thirty years after an attack.
Group D Serum, from thirty years up after an attack.

METHOD OF OBTAINING AND PREPARING SERUM

(*a*) *Amount.*—To obtain the immune serum, the blood is drawn from suitable donors in quantities varying with the age, weight and apparent hemoglobin content of the individual. On an average, it is safe to withdraw 2 ounces from children 9 to 10 years of age, 3 to 4 ounces from children 12 to 13 years of age, and from 4 to 6 ounces from persons 18 years of age and over. Adults, especially robust, full-blooded persons, can furnish from 10 to 16 ounces of blood. Similar amounts of blood can be safely withdrawn again at the end of two to three weeks.

(*b*) *Technic—Obtaining the Blood.*—The blood is obtained by means of a No. 15 gage steel or platinum needle, to which a small piece of rubber tubing is attached. In children, adults and stout persons with small or indistinct veins, the blood is withdrawn by means of a 1 ounce record syringe, and a No. 17 gage needle. The blood is collected in small square bottles in quantities of from 1 to 2 ounces and given a long slant so as to obtain as broad a surface for the separation of the serum as is possible.

(*c*) *Preparation of the Serum.*—The blood is allowed to clot, and the bottles are placed in the ice box during the following twenty-four hours to allow a separation of the serum. This is decanted the following day and centrifuged to free it from pieces of blood clot and red blood cells. To the serum is next added a preservative in the form of 0.2 per cent. tricresol. This is added in a 25 per cent. solution in quantities of 4 c.c. to every 500 c.c. of serum. The serum is then allowed to remain in the ice box for forty-eight hours, so that a fine precipitate, which forms after the addition of the tricresol, separates out and is removed. The serum is then passed through a Berkefeld stone filter, either by suction or by pressure, bottled in quantities of 15 c.c. in dark amber or blue bottles, and kept cold in the ice box. The tricresol was found to increase the local irritant effect of the serum, and it may be advisable not to add it as a preservative.

(*d*) *Duration of Efficiency of the Serum.*—If the serum has been preserved with tricresol, or handled with sterile precautions after it has been passed through the Berkefeld filter, and is afterward kept in a cold place, it will probably remain efficient in its specific antibody content for a number of weeks. So far the serum has been used up almost as fast as it has been obtained. Some of the serum which had been kept for from four to six weeks seemed to be as active therapeutically as the more recently drawn serum.

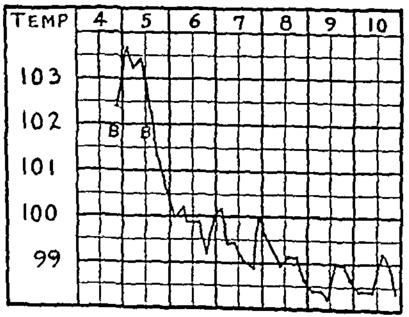

Chart 4.—Typical curve in preparalytic case of poliomyelitis in which immune serum was given and which ended in complete recovery: *B*, injection of 15 c.c. immune serum B.

In an emergency, or when the facilities for treating the serum are not obtainable, the blood is simply drawn in a perfectly aseptic condition into a vessel with glass beads, shaken and centrifuged; or the serum drawn in the usual way is allowed to separate during the next few hours, and promptly used, the presence of a few suspended red blood cells being disregarded entirely. When immune serum is not obtainable, fresh normal serum is procurable at any time from the parents or other relatives of the patient, and can be used within a few hours. Certainly it is advisable not to fail to administer human serum in the treatment of any case of poliomyelitis, because of a lack of already prepared serum.

It is important to note in the preparation of serum, either for stock or fresh without a preservative, that no heat is applied either for inactivation or for sterilization.

Each donor should be otherwise healthy and give a negative Wassermann reaction.

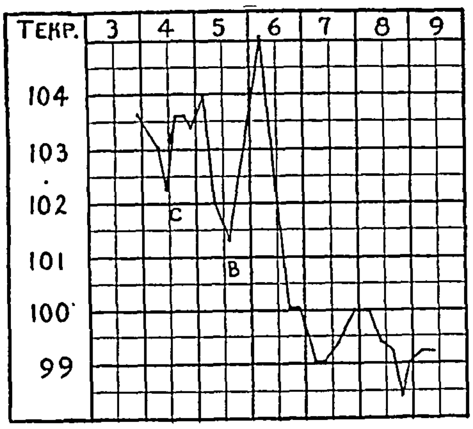

Chart 5.—Temperature curve of a patient with poliomyelitis who developed a facial paralysis eighteen hours after the first dose of immune serum. This patient made a complete recovery: *C*, injection of 20 c.c. immune serum C; *B*, injection of 15 c.c. immune serum B.

RESULTS OF SERUM TREATMENT

The most evident action of the serum was a marked cellular response of the cerebrospinal meninges in the presence of the serum injected by lumbar puncture. This cellular reaction consisted of a very decided increase of the polymorphonuclear cells, which preponderated in some of the cases to the extent of 95 per cent., while the total cell count increased from 500 to 10,000 cells per cubic centimeter. This increase of cells was at times so pronounced that the spinal fluid obtained at the end of twenty-four hours had a very marked turbid, almost purulent appearance, and a heavy sediment of cells was found in the test tube within a few hours after the lumbar puncture. Culturally, these fluids were always found sterile. This cellular response also followed the injection of normal human serum, of normal horse serum, and of the secondary albumoses of Jobling when these serums were used in the same early stages of disease. This high cellular reactivity of the cerebrospinal meninges is probably due to the very marked congestion of the vessels of the pia-arachnoid and of the cerebral cortex. It is probable that in the use of immune serum we have, in addition, the helping factors of antibodies against the virus of poliomyelitis which stimulate the polymorphonuclear cells to increased phagocytic activity. We cannot estimate the phagocytic action of the cells, as the virus is too minute to be seen. It must not be overlooked, however, that we have probably obtained therapeutic results as good after the use of serum from Group C or Group D as from Group A or B. Such serums may have only a problematic value as antiserums, and almost their entire action may depend on the rich protein content of all blood serums. Further experimental work will no doubt have to be carried out in monkeys to determine whether the previous injection of immune serums into the spinal canal of monkeys will have a greater protective value to subsequent infection with active virus than after the injection of normal human serum.

If the injection of immune or of normal human serum was made in the later stages of the disease, when the temperature had already subsided, the cellular response was found much poorer, and only an opalescence of the spinal fluid was noticeable at the end of twenty-four hours. This lessened cellular response is probably due to a subsidence of the acute congestion of the brain and meninges.

Clinically, the injection of immune or of normal human serum was followed within twenty-four hours in the early preparalytic cases by an intensification of the meningeal symptoms. There were increased rigidity of the neck, opisthotonos, marked Kernig's sign, hyperirritability, headache, vomiting and increased temperature which reached in the most severe reactions up to 104 or 105 F. At times, when the reaction was especially severe, there were twitchings or even convulsive movements of the extremities. These symptoms represented merely a more severe degree of the early preparalytic phenomena of the disease. In some of these cases the temperature was simply caught in its upward rise, and had, therefore, no significance. Definite temperature reactions were, however, noted after the primary and also after secondary injections of serum. The typical curve can be seen in Charts 1 to 4: A rise in temperature, persistence for another twenty-four hours, generally without any further increase after a second dose of serum, and subsidence by a rapid lysis. Charts 5 and 6 show temperature curves of patients who developed paralysis during the course of treatment.

TABLE 1.—ALBUMIN CONTENT OF SPINAL FLUID IN POLIOMYELITIS

Days Ill	Total No. Spinal Fluids	Maximum		Large Amount		Moderate Amount		Slight but Distinct Increase	
		No.	Pr. Ct.	No.	Pr. Ct.	No.	Pr. Ct.	No.	Pr. Ct.
1- 7	52	8	15.4	22	42.3	18	34.6	4	7.7
7-14	39	20	51.3	10	25.6	6	15.4	3	7.7
14-21	35	12	34.3	7	20.0	11	31.4	5	14.3
21-28	31	8	25.8	12	38.7	7	22.6	4	12.9
28-35	26	3	11.5	4	15.4	14	53.9	5	19.2
35-42	37	1	2.7	8	21.6	18	48.7	10	27.9
42-49	51	4	7.8	14	27.5	20	39.2	13	25.5
49-56	50	2	4.0	11	22.0	26	52.0	11	22.0

The other symptoms, like rigidity of the neck and Kernig's sign, persisted for from two to three days after the temperature had dropped to normal. Gradually the symptoms cleared up and the patient, if there was no complicating paralysis, made a rapid and uneventful convalescence.

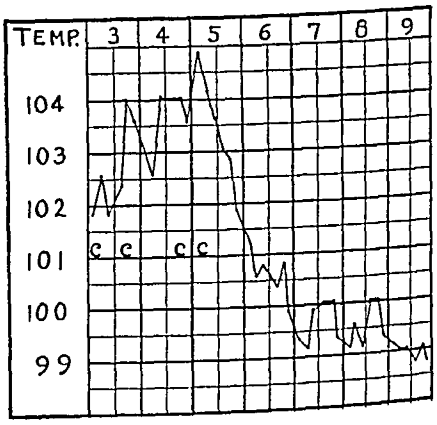

Chart 6.—Temperature curve of a patient with poliomyelitis who developed paralysis of both lower extremities and partial paralysis of both deltoids on the day of the third injection of immune serum. This patient made a partial recovery: *C*, injection of 15 c.c. immune serum C.

The cases treated with immune serum may be divided into three groups:

1. Cases treated at the Willard Parker Hospital.
2. Cases treated at the Minturn Hospital.
3. Cases treated with other physicians.

1. Willard Parker Cases.—A. *Immune Serum Cases.*—(*a*) Preparalytic Cases: Twenty-five:

Type of Serum		No. of Doses	
A	0	One	20
B	1	Two	4
C	17	Three	1
D	7		25
	25		

Results.—(1) Twenty-four remained free from paralysis; (2) one had weakness of both quadriceps extensor (Serum C); (3) none died.

(*b*) Paralytic Cases: Eighty-eight: 1. Thirty-eight patients died: (*a*) Eighteen died in less than twenty-four hours after first dose of serum; (*b*) nine died within forty-eight hours after first dose of serum; (*c*) five died in more than forty-eight hours after first dose of serum; (*d*) two died of tuberculous meningitis; (*e*) one died of gastro-enteritis, and (*f*) three died of pneumonia.

Type of Serum		No. of Doses		Type of Case	
Convalescent	1	One	23	Bulbar	7
A	4	Two	13	Bulbospinal	6
B	10	Three	2	Spinal	22
C	23			Cerebral	1
			38	Tuberculous	2
	38				38

A large proportion of the fatal cases were in children in the last stages of an advancing Landry type of poliomyelitis. Of the eighteen who died within less than twenty-four hours, a majority were moribund, and passed out within a few hours after the administration of a single dose of serum. Many of the patients in this group received the serum only as a last resort. The bulbar cases had well pronounced respiratory difficulty before the serum was injected.

2. Fifty lived:

Type of Serum		No. of Doses		Type of Case	
Convalescent	1	One	39	Bulbar	8
A	6	Two	9	Bulbospinal	2
B	21	Three	1	Spinal	40
C	20	Four	1	Cerebral	0
D	2		50		50
	50				

These patients, at the time of treatment already had a well developed paralysis, but were in a still active stage of the disease, as shown by temperature and a spreading type of lesion. These children recovered and showed a definite clinical improvement; but it is difficult to state how much of the improvement, which is also generally seen in the untreated cases, was due to the administration of the serum, and how much would have taken place during the natural course of the disease.

B. *Normal Serum Cases.*—To determine whether a similar cellular reaction would be produced by the intraspinal injection of normal serum and similar therapeutic results obtained, a series of preparalytic and paralytic cases was treated with serum obtained from persons who had never, to their knowledge, had poliomyelitis. It is, however, recognized that persons who have never had the lesion may have protective substances in their blood.

(*a*) Preparalytic Cases: Ten:

No. of Doses		Results	
One	7	Remained free from paralysis	9
Two	3	Developed bulbar symptoms within 12 hours and died	1
	10		10

(*b*) Paralytic Cases: Thirty-three: 1. Five patients died: (*a*) three died within less than twenty-four hours after first dose of serum; (*b*) one died of sepsis, and (*c*) one died of pneumonia.

No. of Doses		Type of Case	
One	3	Bulbar	1
Two	2	Spinal	4

Two of the children who died within less than twenty-four hours had advanced ascending spinal cases of the Landry type, and one a bulbar case.

2. Twenty-eight patients lived:

No. of Doses		Type of Case	
One	21	Bulbar	5
Two	7	Spinal	23

There was a distinct clinical improvement in the patients who recovered, but whether more than would naturally take place without the use of serum it is difficult to say.

The final results of the Willard Parker Hospital cases were obtained from the hospital records, since I followed up some of the cases for only a short time after the injections of serum.

2. Minturn Hospital Cases.—(*a*) Preparalytic Cases: Fifteen:

Type of Serum		No. of Doses	
A	0	One	0
B	5	Two	11
C	9	Three	2
D	1	Four	2
	15		15

Results: (1) Nine remained free from paralysis; (2) two developed paralysis within less than twenty-four hours: (*a*) bulbar, with complete recovery (B), and (*b*) facial, with complete recovery (C); (3) four developed paralysis after forty-eight hours: (*a*) facial, with complete recovery (B); (*b*) internal strabismus, with complete recovery (C); (*c*) both lowers and left deltoid, with marked improvement (C), and (*d*) both lowers, both deltoids, with final improvement (C).

This series represents an interesting and valuable group of cases. Each patient was fully treated and carefully observed for a period of eight weeks, and the clinical results lead one to the conclusion that the serum was distinctly beneficial in the treatment of these preparalytic cases.

(*b*) Paralytic Cases: Eighteen:

Type of Serum		No. of Doses		Type of Case	
A	3	One	7	Bulbar	2
B	3	Two	7	Spinal	16
C	12	Three	2		
D	0	Four	2		18

Results: Fifteen recovered with improvement of paralysis; three died: (1) two Landry spinal, and (2) one bulbar.

The cases in this group represent chiefly the usual spinal type, in an active stage of the disease, as shown by the short history and the presence of high temperature. The fatal cases were seen and treated at a time when the prognosis seemed to be very doubtful.

In addition to the serum-treated patients there were at the Minturn Hospital forty-one patients who received no serum. The majority of these cases came under observation during the stage of convalescence.

3. Cases Treated with Other Physicians.—These patients were personally observed and treated.

(*a*) Preparalytic Cases: Fourteen. No patients died.

Type of Serum		No. of Doses	
A	3	One	7
B	2	Two	3
C	7	Three	4
D	2		14
	14		

Results: Eleven remained free from paralysis; three developed paralysis: (1) facial and strabismus with complete recovery (A); (2) anterior tibial groups with marked improvement (D), and (3) paresis of both upper eyelids with recovery (C).

This group of cases treated in the preparalytic stage of the disease is also interesting in the large number of complete recoveries which followed the treatment with immune serum.

(*b*) Paralytic Cases: Thirteen:

Type of Serum		No. of Doses		Type of Case	
A	1	One	6	Bulbar	2
B	3	Two	2	Bulbospinal	1
C	8	Three	5	Spinal	10
D	1		13		13
	13				

Results: Nine patients recovered with improvement in paralysis; four died: (1) three Landry spinal, and (2) one bulbar.

The bulbar patient died within two hours. It was a far advanced case, and the prognosis was poor. Of the three Landry spinal patients, two died within less than twenty-four hours after treatment.

In addition to these cases that were seen personally, the serum was supplied to physicians for over 200 cases. The reports obtained from the physicians are not complete, but the cases reported indicate results similar to those detailed above.

4. Control Cases.—It is very difficult indeed to state definitely to what extent the results obtained with serum could

be ascribed to the action of the serum alone, either as a specific or as a nonspecific form of treatment. As stated above, the natural course of the disease is variable. For purposes of control, therefore, a series of twelve nontreated preparalytic cases was taken without selection from the records of the Willard Parker Hospital.

Control Preparalytic Cases: Twelve: (*a*) Five remained free from paralysis; (*b*) seven developed paralysis: (1) bilateral ptosis with little movement of eyeballs; (2) complete facial paralysis; (3) paresis of right arm and left leg; (4) paresis of right leg; (5) paresis of neck muscles; (6) paresis of both quadriceps extensor; (7) paralysis of both lower extremities.

At the Minturn Hospital there were three nonparalytic patients, admitted eight days after the onset of the symptoms, who remained free from paralysis. Of two preparalytic patients, one developed strabismus and one paresis of both lower extremities.

Table 2 gives a summary of the cases treated with immune and with normal human serum. It is interesting to see that of fifty-four preparalytic cases treated with immune serum, forty-four remained free from paralysis, while of the ten who developed some form of paralysis, five made a complete final recovery. The results with normal serum seem to be very favorable, but the number of cases treated in the preparalytic stage of the disease is too small, and a larger series of cases should first be treated before final deductions are made. The high mortality among the paralytic cases is explained by the desperate condition of many of the patients at the time the treatment was administered.

TABLE 2.—SUMMARY OF CASES

Institution	Total	1. Preparalytic				2. Paralytic			
		No Paralysis	Paralysis with Final Recovery		Died	Total	Recovered		Died
			Complete	Partial			Complete	Partial	
Treated with (a) immune human serum:									
Willard Parker Hospital	25	24	..	1	0	88	5	45	38
Minturn Hospital	15	9	3	3	0	18	2	13	3
With other physicians	14	11	2	1	0	13	1	8	4
Total	54	44	5	5	0	119	8	66	45
Treated with (b) normal human serum:									
Willard Parker Hospital	10	9	..	..	1	33	4	28	5

COMMENT

It is known that in poliomyelitis we have a group of abortive nonparalytic patients who go through the premonitory symptoms, but do not terminate in paralysis. It is difficult to state, therefore, how many of the patients treated with serum would have remained free from paralysis without serum treatment. The results and the conclusions from any form of treatment in a disease which is so variable in symptomatology and in prognosis, both as to life and disability, must be given with reserve. It seemed to me, however, that the action of serum in poliomyelitis is beneficial; that the use of serum from recent immune donors is preferable to normal serum, but that human serum is indicated in the treatment of the acute stages, especially in the preparalytic period of the disease. When carefully observed and controlled, the treatment is harmless. A distinct reaction follows in some of the cases after the first dose; the reaction is less marked after the second, and little, if any, is noted after the third injection of serum.

Two groups of cases seemed to give an unfavorable prognosis even in the earlier stages of the disease. One was the fulminating bulbar type with a rapidly progressive involvement of the respiratory center. The second type was a spinal paralytic form which impressed itself by the possibility of mistakes in diagnosis, the very acuteness of the course of the disease, and the hopelessness of any form of treatment. The type referred to is one which begins with symptoms of rapid respiration which suggest for a few hours the diagnosis of pneumonia. The paralytic phenomena, however, soon became manifest and rapidly spread, involving all the extremities and resulting fatally within from twelve to eighteen hours after the onset of respiratory symptoms. The clinical picture suggests an overwhelming involvement of the cerebrospinal axis, in which the intercostal and other accessory muscles of respiration show, because of their vital functional activity, the earliest paralytic symptoms.

In the later cases, which were treated after the paralysis had already made a distinct headway and was beginning to involve the muscles of respiration, the serum showed possibly in a certain proportion of cases an inhibitory effect on further progress, which resulted in a saving of life. It is difficult to forecast, however, what the natural result of the disease would have been in these cases. Control patients without serum, in whom the muscles of respiration were involved at the time the patients came under observation, have also recovered. It seemed, however, that a larger number of serum-treated patients of the same degree of severity had remained alive than would have without the use of serum. No very definite judgment of the value of serum can be based on the results obtained in these cases. Yet, as a possible life-saving procedure, we should continue to use the serum even in these cases and in the course of time obtain more definite results.

SUMMARY AND CONCLUSIONS

1. The injection of immune and of normal human serum into the spinal canal during the acute febrile stage of poliomyelitis causes a distinct cellular reaction which is mostly polynuclear in type.

2. The phagocytic action of these cells is beneficial in poliomyelitis.

3. Such action is enhanced in immune serum by the presence of specific antibodies.

4. It is preferable to use fresh serum, or serum which has been obtained under sterile precautions, passed through a Berkefeld filter and bottled without the addition of a preservative.

5. The presence of a preservative and of hemoglobin in serum enhances its irritating effect, and gives rise to the more severe types of reaction:

6. For purposes of treatment, it is important to diagnose the cases during the preparalytic stage of the disease by the typical group of early symptoms and the changes in the spinal fluid.

7. These symptoms are fever, slight rigidity of the neck, jerky movements and fine tremors of fingers and hands.

8. The diagnosis of poliomyelitis can generally be confirmed in the early stages of the disease by a bedside examination of the spinal fluid which shows macroscopically the ground-glass appearance and a positive foam test. The laboratory examination will show an increased number of lymphocytes, an increased amount of albumin and globulin, and a marked reduction of Fehling's solution.

9. Parents should be instructed to recognize the early symptoms so as to notify promptly the family physician. This is especially important in detecting secondary cases in the same family.

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COMMUNITY TREATMENT OF MALARIA

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My personal interest in the treatment of malaria began at the time when a number of my friends returned from Cuba suffering from this disease. They had been treated for months without obtaining permanent relief. I became more directly interested when some of my friends went to Mexico to take charge of a plantation in what proved to be a region thoroughly infested with malaria.

They went with instructions to take the precautions given in medical books. The plantation was located at sea level within the tropics, traversed by a stream varying in width from 100 to 500 yards. There was a good current and the water was clear. They arrived in November. When I visited them, the following March, I found every white person on the plantation severely ill with malaria. One of them was so ill that the local physician, a graduate of one of the best American schools, told the patient that she would have to return to the United States or go up into the mountains to live if she wished to regain her health, because all the methods which he had found effective in an experience of over twenty years in this vicinity had failed in her case.

It then became known to me that this particular region had been shunned by white people and Indians alike, because of the universal prevalence of malaria. The governor of the state refused to permit members of his family to accompany him on the occasion of his presence in this part of the state at a public celebration, for fear of having them infected with malaria. I mention these facts to make it clear that we had to deal with a serious condition.

It became evident at once that the local physicians, whose experience should have fitted them especially for the treatment of these cases, were entirely unable to produce bearable conditions, and that our Americans would be forced to abandon their enterprise unless we could provide efficient relief.

To work out a plan of procedure, I secured recognized books on tropical diseases, and government bulletins, and learned as much as possible from the natives concerning their experiences.

It soon became clear that many persons thought they were ill from malaria when, as a matter of fact, they were suffering from intestinal infection. An especially intelligent native asserted that bananas caused malaria. On investigating, I found that the bunches of bananas were cut green and hung up to ripen. Flies deposited infectious material on the peel, causing black areas. The natives handled this while eating the fruit, and suffered from fever accompanied with diarrhea. The flies had access to the dejecta, and a vicious circle was established. The disease, called *calentura,* a term generally applied to malaria, was not malaria at all, but another disease quite as bad for the patient. When the bunches of ripening bananas were placed in a carefully screened store room, the peel remained free from black spots and the fruit could be eaten without harm.

It was also found that during the treatment of malaria with quinin, the natives had learned that they made much more rapid progress if they kept the bowels active by the use of some cathartic, and especially by subsisting on hot soups entirely and avoiding beans, meat, eggs and cornmeal cakes.

The form of malaria with an attack of chills every second day was most common, but in some cases exacerbations occurred once a day, and in others once every third day. In most of those that failed to have exacerbations every second day, these would occur every seventh day or on days that were multiples of seven. It was also found that certain patients who had apparently fully recovered would have an exacerbation on a day which was a multiple of seven. In other words, the tropical malaria acted as it does elsewhere.

In view of these facts and the literature on the subject, the following plan of treatment was developed. It differs in several important elements from that employed by the local physicians and physicians in this country in malarial regions, but it is so simple that the ignorant foremen on the ranches and the local druggist have applied it in many hundreds of cases, and it has proved effective in their hands in acute cases in which it has been applied according to the exact directions, and has cured even those patients who had never been free from malaria for years. Several of these had suffered from the disease known in this country as dumb ague for more than twenty years. The local physicians, of course, with a few exceptions, still adhere to the form of treatment which they have employed for years.

The treatment depends on certain well known facts which should be borne in mind:

1. Quinin will kill the adult *Plasmodium malariae.*
2. Quinin will not kill the plasmodium in spore form.
3. Quinin will prevent spores from developing into adult forms.
4. Quinin, if given continuously, will consequently keep malaria spores in the body, which will later cause a recurrence.
5. Quinin must be absorbed in order to be effective.
6. Quinin must be kept constantly in the circulation, at least for forty-eight hours, in order to kill all plasmodia which belong to the one, two and three day type.
7. Quinin taken by mouth will not be entirely eliminated in three hours.
8. Quinin taken by mouth may all be eliminated in six hours.
9. It is consequently necessary to give quinin *night* and *day* at sufficiently short intervals to keep fresh quinin in the blood for at least forty-eight hours continuously.
10. The alimentary canal must be in a condition suitable for the absorption of quinin.

11. Hot water in large quantities should be given with each dose of quinin in order to insure solution and absorption.

12. The use of quinin should be completely interrupted for a sufficient interval after all adult plasmodia have been killed to permit the spores to develop sufficiently to be killed by quinin, but not long enough to permit new spores to form; that is, the interval should be less than seven days.

To avoid tediousness, it will be well to give the plan of treatment in the same simple way in which it was given to the foremen on the ranch, although, when the patients could be kept under personal observation, the treatment was begun on the morning on which the exacerbation was to be expected, that is, at the time when there was a marked increase in the number of parasites in the blood; but practically it seemed that if this was not done, the results were perfectly satisfactory. It should be stated, however, that the treatment was applied, as a rule, not in absolutely latent cases, but in those with active symptoms.

RULES FOR TREATMENT

1. Give an exclusive diet of hot soup for ten days' treatment.
2. On the evening of the first day give 2 ounces of castor oil in fruit juice or in beer foam.
3. At 6 a. m. of the second day begin giving a 2 grain capsule of quinin (preferably bisulphate) with cover taken off, with one-half pint of hot water, every two hours night and day for thirty doses, being absolutely sure not to miss a dose, in order to keep fresh quinin in the blood constantly. It is important to insist on waking the patient at night in order that the intervals shall not exceed two hours at any time.
4. For the following six nights and five days give *absolutely no* quinin, but give a pill containing 1/50 grain of arsenious acid with one-half pint of hot water at 6, 9, 12, 3 and 6 o'clock.
5. Give castor oil as in rule 2 on the evening of the fifth day.
6. At 6 a. m., following the sixth night, again begin to give 2 grains of quinin precisely as under Rule 3.
7. After that give general tonics and simple nourishing food.
8. Avoid reinfection by the use of screens and remaining away from locations where infected mosquitoes abound.

COMMENT

By this plan, persons who were nearly discouraged after living on the plantation for four months, and whose only hope for recovery, according to the local physicians with a life-long experience in the treatment of malaria, was to return to the North, became entirely free from the disease in ten days by the use of one-fourth ounce of quinin, while they had not been benefited by the use of twenty times this amount administered according to the generally accepted plan of treatment. These people remained free from malaria for years on the same plantation, until they were forced to come to the United States because of the revolution.

Hundreds of natives were also cured in the same manner, and it seems as though the general application of this method should free any community of malaria, if a ten days' course of treatment were simultaneously instituted for all infected persons.

It seems, however, that physicians are the least likely portion of the community to apply this method without permitting a flaw in the treatment to creep in, which makes the method as unreliable as the methods which are generally employed and which work so satisfactorily in acute malaria of the two or three day type, but which are useless in the chronic forms.

The errors usually committed lie in:

1. Neglecting to give the quinin with no greater interval than two hours, especially at night.
2. Not emptying the alimentary canal before beginning the course of quinin.
3. Giving quinin in some form during the interval of six nights and five days.
4. Failing to remove the cap of the capsule.
5. Not giving hot water with each dose of quinin.
6. Giving a lot of meat or other albuminous food.

It may seem strange to those who have been accustomed to read my articles on surgical subjects that I should undertake the discussion of this subject. Recently, however, I encountered a condition similar to that which existed in Mexico a few years ago in the beautiful tide water region of Virginia, where a large number of university men have purchased plantations which they are conducting in a scientific way, and where they have been annoyed by this condition. There we have instituted the same plan of treatment that was carried out under my direction in Mexico with such beneficial results that it has seemed to me worth while to give other communities the benefit of my observations.

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THE SIGNIFICANCE OF HIGH PULSE PRESSURE *

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In former papers I have taken up the questions of the point at which diastolic pressure should be read and the significance and importance of the diastolic pressure. The value of the diastolic pressure reading, together with the systolic pressure reading, lies in the determination of pulse pressure. The last named is the real force which drives the blood toward the organs and causes the mass movement of the blood.

As I have stated previously, we consider the normal range of the pulse pressure to be between 30 and 50 mm. of mercury. A pulse pressure under 30 mm. is not often found continuing over a long period of time. This pressure is evidently not enough, as a rule, to send the blood through all the numerous channels and force it back to the right side of the heart. On the contrary, pulse pressures of 100 mm. or over are compatible not only with health, but also with considerable bodily and mental vigor.

The changes which take place in the organs of circulation in order to compensate for these unusual pulse pressures often observed have never to my knowledge received more than passing attention. I believe that we should derive a better understanding of the physiologic pathology of the circulation if we had facts which explained the high pulse pressures which we encounter daily.

A moment's thought will suffice to convince any one that very radical and probably demonstrable anatomic changes take place in the heart and aorta when the pulse pressure increases from 40 to 100 mm. of mercury. Suppose we take Howell's figures for an average left ventricular charge, from 75 to 90 gm. It is believed that the left ventricle empties itself completely at every systole. The aorta at the begining of systole is full of blood, in fact is slightly distended, and by its elastic recoil is forcing the blood forward to the periphery. Into this aorta, in this condition, are thrown from 75 to 90 gm. of blood in less than half a second under normal conditions. Only one thing can happen. The aorta, chiefly the arch, must be stretched to accommodate this added blood. The anatomic structure of the aorta is such that it can take care of just this sort of influx. The elastic laminae are thick and strong. No muscle is found. There is no need of muscle in this situation.

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* Read before the Milwaukee County Medical Society, Nov. 10, 1916.

Again, the normal aorta has considerable of what Meltzer calls "factor of safety." That is to say, after violent exercise the systolic pressure rises rapidly, and the diastolic rises only slightly, so that the pulse pressure, which previously at rest may have been 40, reaches from 65 to 70 mm. of mercury. The pulse rate is also increased, and the volume output is greater. The mass movement is also larger. A greater amount of blood is thrown into the aorta at systole, but the capacity for dilatation which resides in the aorta makes it easily able to take care of the added strain.

For some time I have been engaged in studying the various factors which make up and keep up a high pulse pressure, and I have been able, I believe, to bring together four factors which are correlated and which are found in all high pulse pressure cases. If any one of these factors is present, the other three are found.

1. In all high pulse pressure cases there is increase in the size of the cavity of the left ventricle. The ventricle actually contains more blood when it is full, and throws out, therefore, more blood at each systole. The actual volume output is greater per unit of time. Such hearts always show increase in thickness of the ventricular wall. I quite agree with Stone,[1] who says, "It is merely to be emphasized that when the pulse pressure persistently equals the diastolic pressure [high pressure pulse, in other words] with a resulting 50 per cent. *overload,* which means the expenditure of double the normal amount of kinetic energy on the part of the heart muscle, cardiac hypertrophy has occurred." They are found in aortic insufficiency, in chronic nephritis, in the diffuse fibrous type of arteriosclerosis, and in some cases of exophthalmic goiter. Such a condition occurs temporarily after exercise.

2. In all high pulse pressure cases there is actual permanent increase in diameter of the arch of the aorta. This is a compensating process to accommodate the increased charge from the left ventricle. Smith and Kilgore[2] have shown this to be true in cases of chronic nephritis with hypertension. Their research confirms my own observations. They found dilatation of the arch in (1) syphilis (that is, aortitis); (2) age over 50 (that is, probable factor of arteriosclerosis); (3) other serious cardiac enlargement, and (4) hypertension (with more or less hypertrophy, as in chronic nephritis).

In ten cases showing arches at the upper limit of normal (that is, 6 cm. in diameter) and hypertrophy of the heart, three were chronic mitral endocarditis; one was chronic aortic endocarditis; three were chronic mitral and aortic endocarditis, and there was one each of hyperthyroidism, pericarditis and adherent pericardium.

In fourteen cases of hypertension (highest systolic 270 mm., average systolic, 215 mm.), all showed cardiac hypertrophy. "All but three of these cases had great vessels whose transverse diameters measured over the normal limit of 6 cm., and in one of those measuring 6 cm. the Roentgen-ray diagnosis was 'slight dilatation' of the arch." Smith and Kilgore are at a loss to explain the three exceptions. They did not give diastolic pressures, so pulse pressures are not known. Possibly the three exceptions were cases of high diastolic pressure in which the pulse pressure possibly was not over 60 mm. Such cases might show "slight dilatation of the arch," but not marked dilatation, such as was found in the other, evidently high pulse pressure cases.

In the laboratory of the Milwaukee County Hospital we have confirmed these results. We have found that only the high pulse pressure cases show dilatation of the arch. Certain high tension cases which have had a very high diastolic pressure do not reveal any accurately measurable dilatation of the aortic arch. An empty aorta after death is quite different from a functionating aorta during life. Hence the dilatation which is found postmortem must have been considerable during life. And conversely, a dilatation which was present during life might not be looked on as such after death.

3. In all high pulse pressure cases one will find on careful auscultation over the manubrium, particularly its lower half, breath sounds which vary from bronchial to intensely tubular. At times the percussion note will be slightly impaired, as McCrae[3] has shown in dilatation of the arch of the aorta. This auscultatory sign is evidence of some more or less solid body in the anterior mediastinum which is lying on the trachea and permits the normal tubular breathing in the trachea to be audible over the upper part of the sternum. It is found in cases of dilated aortic arch. Fluoroscopic examination has confirmed the findings on auscultation.

4. In all high pulse pressure cases, in which the pulse pressure is over 70 mm. of mercury, there is increase in the size of all large distributing arteries, carotids, brachials, femorals, renals, celiac axis, etc., with fibrous changes in the media, loss of some of the elasticity, and, in the palpable superficial arteries, increase in size of the pulse wave.

Increased pulse pressure means increased volume output but does not always mean increased velocity. The proper distribution of blood to the various organs of the body is regulated by the vasomotor system acting on the small arteries which contain considerable unstriated muscle. In order that there may be enough blood at all times and under varying conditions of rest and function, there must be a proper supply coming through the distributing vessels, the large arteries, those containing much elastic tissue, and only a very small amount of unstriated muscle tissue or none whatever. Fibrous sclerosis of these vessels causes them to become enlarged and tortuous and to lose much of their elasticity, which is essential for the even distribution of blood. A greater blood volume is therefore necessary in order that the organs may receive their quota of blood. A force which is sufficient to send blood through elastic normal distributing tubes becomes totally insufficient to send the same amount of blood through tortuous and more or less inelastic tubes. As a compensatory process the pulse pressure increases. For this to increase, the left ventricular cavity dilates, the arch dilates, and as a greater force must be exerted to keep the increased mass in motion, the heart responds by hypertrophy of its left ventricle and becomes itself the subject of fibrous changes in the myocardium. The mass movement of blood is therefore greater in high pulse pressure cases than in cases of normal pulse pressure.

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[1] Stone, W. J.: The Differentiation of Cerebral and Cardiac Types of Hyperarterial Tension in Vascular Diseases, Arch. Int. Med., November, 1915, p. 775.

[2] Smith, W. H., and Kilgore, A. R.: Dilatation of the Arch of the Aorta in Chronic Nephritis with Hypertension, Am. Jour. Med. Sc., 1915, **149**, 503.

[3] McCrae, Thomas: Dilatation of the Arch of the Aorta, Am. Jour. Med. Sc., 1910, **140**, 469.

In cases of chronic interstitial nephritis — contracted granular kidney — it may well be that the sclerosis of the arteries is a secondary process caused, as Adami thinks, by the hypertension itself. In aortic insufficiency the situation is somewhat different. The high pulse pressure is due to a very low diastolic pressure, for in my experience with uncomplicated aortic insufficiency the systolic pressure is, as a rule, not much increased above the normal for the individual's age. Here peripheral resistance is so low that a capillary pulse is common. The volume output per unit of time is greatly increased, the arch of the aorta is dilated, and the pulse is large. The fact that a large part of the blood regurgitates during diastole back into the ventricle, and the fact that the diastolic pressure is low means that there is no increased resistance to overcome, and the systolic pressure is not raised.

The opinion expressed in previous publications that the diastolic pressure is the really important part of the blood pressure picture is again emphasized. Particular attention should be directed to the pulse pressure. That measures the actual head of pressure, and careful observations from time to time are of great prognostic value. Again, it is emphasized that high pressure is not a signal of impending dissolution. It must be viewed as a compensatory process, and more attention should be given to changes which appear in the pulse pressure. I feel that we are often recording our blood pressure readings simply as a routine, and that they mean nothing to us. There are still problems to be solved in this field. It is hoped that this small contribution will help to solve some of the questions which arise in the interpretation of a blood pressure picture.

SUMMARY

No blood pressure reading is complete unless both systolic and diastolic pressures are determined.

Pulse pressure is important because it gives the actual driving (kinetic [Stone]) force which keeps the blood in motion and has therefore a great value in prognosis.

High pulse pressure is invariably accompanied by four conditions, some of which can always be determined, and frequently all of which can be found. These are (1) increased size of cavity of left ventricle; (2) definite dilatation of arch of aorta; (3) bronchial or tubular breath sounds heard over the manubrium, and (4) increase in size of all distributing arteries.

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.—In former days, when there was a widespread
epidemics of disease were caused by emanations
ing gases, the offensive conditions in a highly
were considered a gross menace to the health
immediate vicinity. Nowadays it is recog-
and disgusting appearances, while cer-
health or happiness, exercise at most
indirect, influence in the causation
cessity for abating such nuisance
s for the sake of common decency
of specific diseases.—W. H. Frost,
Sept. 15, 1916.

MODERN METHODS OF BLOOD TRANSFUSION [*]

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In the course of the development of the technic of indirect transfusion, a variety of methods have been developed in the last few years. A great number were short lived and did not acquire popularity. Those in use at present are:

1. Syringes. The Lindeman syringe method was lately considerably simplified by Unger,[1] who devised a double way stopcock. With the aid of this stopcock and an ether spray, as suggested by Elsberg,[2] large transfusions can be given with one syringe. In fact, one syringe and an ether spray are a sufficient armamentarium in emergency cases.[3]

2. Glass cylinders, coated with paraffin.[4] Large glass containers (from 250 to 500 c.c.) are used. They are coated with paraffin in order to prevent coagulation. A disadvantage of the method is that the veins of both donor and recipient have to be exposed by a small incision. The coating of the cylinders is not a simple technical procedure.

3. Citrate method.[5] The rationale of this method is that the blood is mixed with an anticoagulant, and the much feared possibility of coagulation during the transfer from donor to recipient thus made impossible.

The idea is by no means a new one. Several attempts have been made in the last century to find an atoxic anticoagulant for blood transfusion. Neudörfer[6] suggested the use of sodium bicarbonate in 1860, and Braxton Hicks[7] tested sodium phosphate with the same object in view in 1869. These experiments were failures, and no further attempts along these lines seem to have been made in the last fifty years.

And yet Neudörfer and Braxton Hicks had the correct idea. Their endeavor to make the blood incoagulable during the transfer from donor to recipient offered a correct working basis. If their work had been taken up by others, the development of the technic of blood transfusion would have traveled on a much more simple route than it has actually done.

When I began animal experiments with sodium citrate with the object of using this drug in human blood transfusion, I did not by any means apply a new drug which had never been used before as an anticoagulant. In fact, sodium citrate was known as the most efficient anticoagulant, and was used extensively in laboratory work. A 1 per cent. mixture of sodium citrate and blood was considered necessary for the prevention of coagulation. Furthermore, it was generally assumed that such a mixture would be toxic when used in the human being.

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[*] Read by invitation before the Chicago Medical Society, Nov. 15, 1916.

[1] Unger, L. J.: A New Method of Syringe Transfusion, The Journal A. M. A., Feb. 13, 1915, p. 582.

[2] Elsberg, C. A., reported by Unger, L. J.: Recent Simplifications of the Syringe Method of Transfusion, The Journal A. M. A., Sept. 18, 1915, p. 1029.

[3] Lewisohn, Richard: Blood Transfusion with One 20 c.c. Syringe, Am. Jour. Surg., 1915, **29**, 361.

[4] Kimpton, A. R., and Brown, J. H.: A New and Simple Method of Transfusion, The Journal A. M. A., July 12, 1913, p. 117. Percy: Simplified Method of Blood Transfusion, Surg., Gynec. and Obst., 1915, **21**, 360.

[5] Lewisohn, Richard: A New and Greatly Simplified Method of Blood Transfusion, Med. Rec., New York, 1915, **87**, 141; Blood Transfusion by the Citrate Method, Surg., Gynec. and Obst., 1915, **21**, 37; Citrate Method of Blood Transfusion in Children, Am. Jour. Med. Sc., 1915, **150**, 886; Importance of the Proper Dosage of Sodium Citrate in Blood Transfusion, Ann. Surg., 1916, **64**, 618.

[6] Neudörfer: Ueber Transfusionen bei Anaemischen, Oesterr. Ztschr. f. prakt. Heilk., 1860, **6**, 124.

[7] Hicks, J. B.: Guy's Hosp. Rep., 1869, **14**, 7.

My experiments were carried out with the object of answering the three following questions:

1. What is the smallest dose of sodium citrate required to keep the blood from clotting?

2. Is sodium citrate atoxic in the amounts required for our purpose?

3. How does sodium citrate affect the coagulation time of the blood?

The results of these experiments were published in extenso in 1915. I shall therefore mention here only my conclusions:

1. Two-tenths per cent. instead of 1 per cent. is the percentage of sodium citrate and blood required for the safe prevention of coagulation. Such a mixture prevents coagulation of the blood outside the body for from two to three days.

2. Five gm. of sodium citrate can be introduced safely into an adult. Larger amounts are extremely toxic. We rarely transfuse more than 1,000 c.c. of blood, which would represent 2 gm. of sodium citrate. However, even a transfusion of 1,500 c.c. of blood would require only 3 gm. of sodium citrate, a perfectly safe dosage.

3. The introduction of citrated blood causes a temporary shortening of the coagulation time of the recipient's blood. The coagulation time returns to its previous level usually in less than twenty-four hours.

Before leaving this subject, I should like to point out how the whole applicability of sodium citrate in human blood transfusion is based on the development of the small dose (0.2 per cent.). This new fact was the most important result of the experiments mentioned above.

The technic of the citrate method can be divided into two separate actions, each of them well known to any practitioner. One is the venipuncture or, in exceptional cases, venesection of the donor's vein; the other is the intravenous infusion of the citrated blood into the recipient.

1. Obtaining the blood from the donor. A tourniquet is applied to the donor's arm, and one of the larger veins in the elbow region (usually the median cephalic vein) is punctured. A cannula of large diameter is used in order that the blood may flow out rapidly through the needle. The blood is collected in a graduated glass jar which contains at its bottom the 2 per cent. citrate solution. If we want to give 450 c.c. of blood, we add 50 c.c. of this solution, thus effecting a 2 per thousand mixture. Smaller and larger amounts of blood are treated proportionately. It is important to take good care that in mixing blood and citrate the proportion is never less than 2 per thousand. In order to prevent such an occurrence it might be advisable to add a few cubic centimeters of surplus citrate solution, which can be done with perfect safety.

2. Infusion of the blood into the recipient. The recipient is usually so anemic that we have to expose the vein by a small incision in about 80 per cent. of the cases. The cannula is inserted, and the latter is attached to a salvarsan apparatus which contains from 20 to 30 c.c. of physiologic sodium chlorid solution. The blood is then poured into this apparatus and allowed to run into the punctured vein by gravitation (exactly like an ordinary saline infusion).

The technic of this method is certainly most simple. It has the further advantage that no special apparatus, not even a syringe, is required for its use. A trocar, a piece of rubber tubing, a glass funnel and a few grams of sodium citrate represent the whole outfit. We often forget that methods should be applicable not only in large, well equipped hospitals, but also in any small village. I think any country practitioner ought to be acquainted with this simple method. Many a life could thus be saved, especially as this method offers the further advantage that the blood can be carried from one place to another. Brem[8] has carried citrated blood 70 miles before he injected it. Burmeister[9] has even gone a step farther and advised the storage of erythrocyte-citrate emulsion for emergency use. There is no doubt that citrated blood can be kept for hours and possibly up to two days, and then injected without harm to the patient. This procedure should, however, be applied only in exceptional cases, as possible hemolysis and other biologic changes in blood so kept do not make it quite as safe and efficient as blood which is transferred from donor to recipient with a short interval.

A Wassermann test must be made in every donor, particularly the professional ones. Furthermore, the blood of the donor and recipient must be tested in order to prevent hemolysis and agglutination. These tests can be done in very few hours and ought to be applied, except in cases of very grave emergency. The opinion has been expressed by different men that these tests are unnecessary. Rather large series of transfusions without tests have been reported, and the absence of any symptoms of hemolysis has been made use of as proof for this contention. This, however, is misleading. It is perfectly feasible to perform twenty transfusions without tests and without serious accident and to have the twenty-first patient die on account of serious incompatibility of the blood of donor and recipient. Such an accident can be avoided easily by proper laboratory tests. Thus to endanger the life of a patient unnecessarily is foolhardiness.

The following important facts ought to be kept in mind in connection with this question: 1. Donors cannot be used a second time for the same patient without another test as to hemolysis and agglutination. 2. Blood relatives (parents and children, brothers, etc.) have to be tested just as thoroughly as strangers, as their blood often is very incompatible in spite of their near blood relationship. Cherry and Langrock[10] have asserted that in new-born infants the mother's blood can always be used with perfect safety for a transfusion. Other workers, however, do not agree with this statement.

Hueter[11] wrote in 1871 in reference to transfusion:

> Too much stress is laid on the technic, as in all operations which are still in the stage of infancy. First a lot of new instruments are invented which are the pride of the inventors, then the technic becomes a minor detail and the indications the main object. Of all the instruments only the simplest are kept.

It has taken over forty years to reach this stage of utmost simplification of the technic of blood transfusion. The technic is now so much simplified that it can be mastered very easily by any physician. We shall have to learn a great deal, however, in reference to indications. Our work in the future along these lines will have to put the clinic of blood transfusion on a safe basis. Nobody who has ever seen the revival of a practically pulseless patient by a few hundred cubic centimeters of blood can doubt the marvelous efficiency of blood transfusion. The further development of this interesting field will require the combined efforts of practitioner and serologist. I am sure the results will justify our efforts.

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[8] Brem, W. V.: Blood Transfusion, The Journal A. M. A., July 15, 1916, p. 190.

[9] Burmeister, W. H.: Resuscitation by Means of Preserved Living Erythrocytes in Experimental Illuminating Gas Asphyxia, The Journal A. M. A., Jan. 15, 1916, p. 164.

[10] Cherry, T. H., and Langrock, E. G.: Relation of Hemolysis in the Transfusion of Babies with the Mothers as Donors, The Journal A. M. A., Feb. 26, 1916, p. 626.

[11] Hueter: Arterielle Bluttransfusion, Arch. f. klin. Chir., 1871, 12.

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GASTRIC SYMPTOMS DUE TO IRRITATION IN THE EXTERNAL EAR

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Foreign bodies, including cerumen, may remain indefinitely in the external ear without producing symptoms. If symptoms occur, they are usually local, such as fulness, deafness, tinnitus and pain. Occasionally they cause reflex symptoms, suggesting disease in an organ other than the ear.

Reflex symptoms may be accompanied by symptoms referable to the ear, in which case one's attention is naturally directed to this organ as the probable seat of trouble. If, however, there are no symptoms suggestive of ear disease, it is natural to give all our attention to the distant organ apparently affected.

In textbooks on medicine, no mention is made of the ear as a possible source of gastric disturbances. Books on otology mention, among reflex symptoms caused by foreign bodies in the ear, cases of epilepsy, hemianesthesia and cough, the latter sometimes accompanied by vomiting: but the description is not such as would indicate that the cough or vomiting might dominate the picture and simulate a pure pulmonary or gastric disease.

I have seen several cases of persistent cough, some causing serious concern as to the possibility of pulmonary tuberculosis, due entirely to foreign bodies in the ear. It is with those causing gastric symptoms, however, that this report is concerned. In Treves' "Surgical Applied Anatomy," there is an account of a case similar to the one I shall first describe; otherwise, I have found no reference to this condition in the literature reviewed.

Case 1.—S. L., girl, aged 12, was referred by her family physician on account of persistent vomiting. From 2 to 4 years of age, she suffered from some digestive disturbance. Since then her health had been good until the beginning of the present trouble. Two years before, supposedly because of worry over her father's illness, she began to vomit. Vomiting occurred immediately after eating. It was independent of the character of the diet, and consisted only of the food last taken. It was sometimes followed by pain in the epigastrium, and was much worse in summer than in winter. The child was undernourished, probably because of inability to retain sufficient food. Complete physical examination, including that of the digestive functions, failed to reveal anything abnormal. In one ear I found a mass which proved to be a glass bead, lightly covered with cerumen, and removal of this gave complete and permanent relief.

Case 2.—F. H., a waiter in a down town restaurant, had not been sick since an attack of typhoid fever nine years before. He admitted gonorrhea, but denied syphilis. He used very little alcohol and no coffee or tea, but drank much ice water and ate large quantities of fruit. He never suffered from digestive disturbances until two weeks before consulting me. At that time he began to suffer from nausea on arising [illegible] was unable to eat much breakfast. The attempt to eat [illegible]d some dizziness and a sensation of strangling. There was no pain, but he experienced a sensation of heaviness in the epigastrium. On each of the last four mornings he vomited half an hour after breakfast. The morning nausea would continue until 1 or 2 p. m., after which he could eat a fair lunch and a good evening dinner, having no discomfort during the rest of the day beyond what he described as a heaviness in his head. The history was atypical of any gastric disease, and suggested a reflex origin. Examination showed impacted cerumen in both ears, and immediate relief followed its removal. The patient subsequently told me of having had wax removed several times before, but on no occasion had there been any gastric disturbance.

Case 3.—E. K., a schoolteacher, aged 21, had some teeth filled several weeks before. The following day she complained of tasting the rubber dam used by the dentist and of being nauseated. On the fourth day she had slight epigastric cramps and vomited once. The pain and nausea were relieved after the vomiting, but in a few hours the nausea returned and continued for the five weeks intervening between this time and the date of her visit to my office. The nausea was not affected by eating. She would get hungry but lose her appetite immediately, especially at sight of the cold lunch she carried with her to school. She had never been constipated before or since the trouble began. Occasionally she had slight burning in the esophagus, which was probably worse after meals, but not regularly so. She had some belching, but no excessive flatus. Urination was more frequent than before the onset of the nausea, but was entirely painless. The history suggested a mild appendicitis, but abdominal examination showed little to confirm this. There was questionable tenderness over McBurney's point, so slight as to cause me to place a question mark in my record while examining her. After prescribing a sedative stomachic, it occurred to me to look at her ears. The left one contained a small amount of cerumen not impinging on the drum. The right ear contained a large plug, completely blocking the canal, and its removal gave immediate relief, which has continued, over a year having elapsed since. Possibly this patient had a mild appendicitis in addition to the impacted cerumen, but it is evident that her symptoms were caused in the main by irritation in the external ear.

Case 4.—A boy, aged 14, had been vomiting several months, during the greater part of which time he was under medical treatment. When I saw him, at his home in a suburb, he had a temperature of 102, was considerably emaciated, and complained of some vague abdominal pain. He was under the influence of morphin, which the previous attendant had apparently given freely, and the examination was very unsatisfactory. I was unable to make a definite diagnosis, but remember that tuberculosis was uppermost in my mind. I prescribed symptomatically and asked to be notified about the subsequent course. Nothing further was heard until several months later, when he came to my office. The high temperature, probably due to some intercurrent infection, had left him shortly after my visit; but the vomiting continued. A complete physical examination then was made, but nothing found to explain the vomiting until the ears were looked into. One of them was apparently filled with cerumen which, on being washed out, proved to be a peanut. Several days later he reported no improvement, and I heard nothing further from him. A few years later, however, one of his brothers came to consult me and reported that the boy had been in good health ever since, and that I was given credit for his recovery. All attempts to obtain fuller details failed, and the case, incomplete as it is, is included as another probable example illustrating the condition under discussion.

A colleague has kindly given me notes of the case of a girl of 18, with vomiting, especially in the morning, so that pregnancy was suspected. After two weeks of these symptoms, she was relieved by the removal from her ear of the broken end of an apple twig, the bud still attached but long dead. As she recalled afterward, this must have been three months in the ear before producing symptoms.

The anatomic explanation of these cases is as follows:

Where the pneumogastric nerve passes through the jugular foramen, there occurs an enlargement known as the ganglion of the root. To this is attached the accessory portion of the spinal accessory nerve. From the ganglion spring two branches, the meningeal and auricular. The latter, or nerve of Arnold, is joined by a filament from the glossopharyngeal. It then passes through the temporal bone, and emerges at the auricular fissure between the mastoid process and external auditory meatus, and divides into two branches. One communicates with the posterior auricular (branch of the facial), while the other branch supplies the skin at the back part of the auricle and the posterior inferior portion of the external meatus. Irritation of this branch of the vagus, or nerve of Arnold, is the explanation of vomiting having its origin in the external ear.

These cases are not frequent, but probably more so than is suspected, and such a cause should be thought of in cases with gastric symptoms which do not correspond with the usual types of digestive disease.

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THE PRACTICAL USES OF RECENT WORK ON THE INTERNAL EAR

TO THE GENERAL PRACTITIONER, THE OTOLOGIST, OPHTHALMOLOGIST, SYPHILOLOGIST, THE NEUROLOGIST AND SURGEON

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Any work in physiology may be regarded as an "interesting study," but from the standpoint of most of us in the practice of medicine, research work of any kind becomes of greatest importance when it proves useful in clinical work. The cry is, "That is all very interesting, but of what *use* is it? How does it help sick people?" To answer this question is the spirit of this paper. A study of the relation of the ear to the central nervous system not only opens a new field for investigation in physiology, but also furnishes information of diagnostic value in the every-day examination of patients. Although it is essentially and entirely an *ear* study, and is useful in the analysis of ear conditions, yet recent investigations have shown it to be of value in medical and surgical diagnosis. These investigations include a study of patients of the Philadelphia Hospital, eighteen other hospitals in this and other cities, and in private practice, but especially in the department of neuro-otology at the University of Pennsylvania. This work has been made possible by the intimate cooperation of Drs. Mills, Randall, Weisenburg, Lewis Fisher and Seth A. Brumm.

It is now recognized that the internal ear, instead of being one organ, consists of two organs of different functions — the cochlea, which is the organ of hearing, and the static labyrinth, which is the organ of equilibration. It seems remarkable that whereas the cochlea has long been recognized as the organ of hearing, the static portion of the ear, consisting of the utricle, saccule and three semicircular canals, has been through all the years a *terra incognita*. It is only in the past few years that the function of the static labyrinth has been carefully studied, preeminently by the Vienna group of otologists, to whom we are indebted for the new methods of testing the internal ear. Robert Bárány has recently received the Nobel prize for this work, and he is to be regarded as the pioneer in the clinical application of the study of the ear and the central nervous system.

THE TESTS

The semicircular canals may be stimulated by revolving a person in a turning-chair, or by douching the ears with either cold or hot water, or by applying the galvanic current to the ear. According to our experience, the turning and douching are much more useful than the electrical test. The galvanic current stimulates equally all portions of the internal ear and, in fact, the eighth nerve itself. As we regard it of greatest importance to analyze the function of the canals separately, we shall consider in this paper only the tests by turning and douching. The essential feature in the physiology of these tests is that the endolymph within the particular canal or canals stimulated is set in motion on the one hand mechanically by the turning, and on the other hand thermically by the douching. When a person is turned to the right, the endolymph catches up to the movement of the body; and when the turning-chair is stopped, the endolymph continues to move to the right by its own momentum. The physiology of the caloric test may be illustrated by the "thermo-syphon" system of some of the popular automobiles. They have no water-pump to force a circulation through the radiator; the engine heats the water, decreasing its specific gravity, and causing it to move upward and forward into the radiator, where it is cooled, drops to the bottom of the radiator, and continues downward and backward into the engine, thus completing the circuit. Similarly chilling the outer portion of a semicircular canal increases the density of the endolymph at this point and produces a circulation downward.

Such ear stimulation produces certain definite phenomena in normal persons — a rhythmic jerking of the eyes known as nystagmus and a subjective sensation of turning which may be termed a systematized vertigo. The eyes are always drawn in the direction of the endolymph movement and are then quickly jerked back in the opposite direction by impulses from the cerebrum. The subjective sensation of vertigo is always in a direction opposite to the endolymph movement. According to our conviction there are only two reactions produced by ear stimulation — vertigo and nystagmus; it is *because* of this vertigo that the person falls in a definite direction, and also, when he attempts to find with his finger an object he has previously touched, he is unable to find it but past-points to the right or left, above or below, depending on the direction and plane of his sensation of vertigo.

It is evident that if stimulation of the ear causes a movement of the eyes, there must be a definite nerve pathway from the ear to the eye muscles. Also if ear stimulation produces dizziness, it is evident there must be a nerve pathway from the ear to the cerebral cortex. The special object of our work has been the attempt to determine the pathways through the brain from the ear. On the basis of over 350 pathologic cases, including a considerable number of operations and necropsies, we have come to certain conclusions as to the course of the fibers from the ear through the brain-stem, cerebellum and cerebrum. In brief, our conclusions are as follows:

ZINC CHLORID IN UTERINE HEMORRHAGE

PARTICULARLY WHEN CAUSED BY UTERINE MYOMAS AND METRO-ENDOMETRITIS OR FIBROSIS UTERI *

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Among the therapeutic agents which have been used successfully to combat uterine bleeding caused by *myomas and chronic metro-endometritis, or, as this is* frequently called, fibrosis uteri, the most prominent are roentgenotherapy and radium. In cases of profuse bleeding, however, a surgical *intervention* is frequently resorted to and the uterus extirpated.

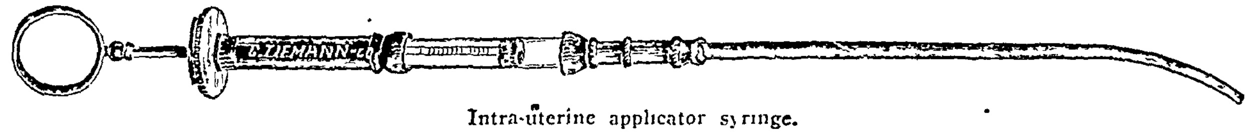
While I advocate surgical intervention in the greater number of fibromyomas, I do not approve of so radical a measure if the uterus is not the seat of neoplasm. Then, too, there are patients who will not submit to a surgical operation. And it is from such patients that I have acquired my experience.

At the New Orleans meeting of this society in 1907 I spoke of the good results obtained in instances of endometritis with menorrhagia from the intra-uterine use of phenol (carbolic acid), and in some instances, when the bleeding was very profuse and the phenol was ineffectual, from the intra-uterine application of zinc chlorid.

Since that time my experience has been greatly increased, and because I have found this form of therapy so very satisfactory, I take the liberty once more of calling attention to it, regardless of the fact that some of our younger brethren may feel inclined to denominate it as "tinkering therapy."

Dr. Marion Sims, who did so much to establish gynecology as a recognized specialty, and other leading gynecologists, as well, made use of zinc chlorid to control bleeding in instances of inoperable cancer of the cervix, and proved it a valuable remedy in properly selected cases. In those days, before I utilized the galvanocautery, brought into extensive use by Dr. John Byrne of Brooklyn, I, too, used zinc chlorid in a number of cases, but discarded it not only because of inability to limit its action, but also because sometimes a vesicovaginal, or even a rectovesicovaginal fistula resulted, in my experience, if the cancer had advanced too far.

It seemed too radical, in my opinion, to subject a patient who had very profuse bleeding, in the form either of menorrhagia or of metrorrhagia, the uterus not being the seat of a neoplasm, to an extirpation of the uterus. I, therefore, commenced to experiment with varying strengths of phenol applied within the uterus. In mild cases this sometimes gave a good result. Then I began to make my applications of longer duration by leaving a gauze strip — a tampon saturated with the medicament in that part of the gauze which was to remain in contact with the corporal endometrium. This is done by wrapping an intra-uterine applicator syringe, such as is made according to my directions by the Kny-Scheerer Company and by Tiemann & Co.[1] The medicament is drawn into the small barrel of the syringe, and this is wrapped with a narrow strip of gauze. The cannula of the syringe is made of silver, from 4 to 5 inches long, with only a terminal opening, *so that the medicament comes into contact* with the endometrium from the fundus downward. To allow of the gauze being readily slipped off, the cannula *should be smeared with petrolatum* before the wrapping. The strip should be from 1 to 2 inches wide, and the length should vary with the size of the uterine cavity, usually from 12 to 24 inches. When the gauze-wrapped cannula has been introduced into the uterine cavity, a small quantity of the medicament, 4 or 5 drops (if zinc chlorid), is expelled into the gauze. Then the cannula is withdrawn slightly and, being used as a uterine packer, more gauze is put into the uterine cavity and more of the medicament is ejected. This process is continued until the desired quantity has been ejected into the gauze and the cavity packed properly. When enough medicament has been put into the gauze, the cannula may be entirely withdrawn and the remaining part of the gauze packed into the uterine cavity with an ordinary smooth uterine applicator. It is essential that none of the medicament should come in contact with the cervical mucosa, especially if zinc chlorid is used, lest a stricture result. The remaining part of the nonmedicated gauze strip is then used to pack tightly the cervical canal. It is frequently necessary to dilate the cervical canal with a cervical dilator to assure a ready packing with the gauze.



Intra-uterine applicator syringe.

A string should be attached to the terminal part of the gauze strip to enable the patient to remove it herself at the time designated for its removal. A fairly large absorbent cotton tampon is placed in the vagina after insertion of the gauze. The time of removal of the intra-uterine tampon depends on whether zinc chlorid or phenol has been used. If phenol, either pure or diluted with glycerin, is the medicament, the gauze strip may be removed after the lapse of a few hours. But if zinc chlorid, the time to elapse must be long *enough to give it an opportunity to exert its action* on the interior of the uterus, which is about three days. In case of severe abdominal pain, which may occasionally occur, one-fourth grain of morphin is sufficient to give relief. It is very important, to insure proper *action of the medicament,* that the interior of the uterus is practically dry; that is, that no bleeding from it occurs when the application is made. When there is bloody oozing, the packing of the cavity with styptic gauze for a variable time is the best method to overcome it.

Unless permanent amenorrhea is desired, not more than from 5 to 10 drops of the strong solution (50 per cent.), or a somewhat larger quantity of a 10 to 20 per cent. solution should be used.

It has been found that one application of zinc chlorid, if properly made, once in four weeks, usually suffices. This is to be repeated, at such intervals, until the wished-for result has been brought about. From four to twelve applications generally suffice. With twelve applications, or even a lesser number, it has been found possible to effect complete amenorrhea in very profuse bleeding from interstitial myomas. Some of these tumors, in my experience, were fully 6 inches in diameter. While they did not decrease in size, the symptoms disappeared and the patients improved in health. Since the bleeding stopped, this was logical.

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* Read before the Southern Surgical and Gynecological Society, White Sulphur Springs, W. Va., Dec. 11, 1916.

[1] The applicator syringe differs from the well known Braun uterine syringe in that the cannula is thinner, because of the gauze to be wrapped around it, it is made of silver, it has only one terminal opening, and it is somewhat larger.

Zinc chlorid is made use of when the uterine bleeding is very profuse from a chronic inflammatory condition of the endometrium, whether the myometrium is involved or not. If the bleeding is not too profuse or too prolonged, phenol suffices to bring about relief. Zinc chlorid is always used in instances of profuse bleeding when interstitial myomas of small size cause it. In large tumors of this character I have not used it, nor would I advise its use, because, in such cases, I feel that it is more to the interest of the patient, if one does not wish to use radium or roentgenotherapy, to remove the tumor. By the latter statement I do not wish to be understood as favoring roentgenotherapy in these conditions, since I myself have seen instances of cancer complicating the tumor.

It is understood, of course, that one should always be sure, before using such treatment, that the bleeding is not caused by a malignant change of the endometrium.

This is a form of treatment which may be used in his office by any intelligent physician who understands gynecologic diagnosis; even the sometimes necessary cervical dilatation, to introduce the gauze-wrapped cannula, may be done. Seldom have I found it necessary to do this, under gas-oxygen anesthesia, in a hospital.

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Some Facts About the Soya Bean.—The soya bean provides oil and food. In order to get as much as possible of the oil out of the meal the pressed pulp is sometimes further extracted by means of a solvent which will dissolve out the oil remaining after the beans have been pressed. Naphtha is good enough, but care must be taken to remove it entirely from the meal. Cattle do not take to the smell of naphtha, although they thrive on the new fodder when it has been thoroughly removed. Tri-chlor-ethylene is another good solvent for soya bean oil; it is not offensive in odor and it is not poisonous when given to cattle in comparatively large doses. Neither is it inflammable or explosive. Offhand it would appear that tri-chlor-ethylene is better and safer in every way than naphtha, but when it has been used as a solvent for the oil in the pressed meal or cake a considerable number of cattle have died from eating it. Since the cake is good feed for cattle and the tri-chlor-ethylene is not poisonous, something must happen, probably a chemical reaction between these two harmless bodies which produces a poison. It is not yet known what the reaction is.

ENTEROSTOMY; A PERFECTED TECHNIC*

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For the purpose of illustrating the technic herein offered, I may describe a case of intestinal obstruction following abdominal section. By the second, third or fourth day the bowels have not been moved, nor has flatus passed. There are increasing tympany, muscular rigidity and abdominal tenderness. Acute dilatation of the stomach develops, with excessive thirst and frequent vomiting of stomach and duodenal contents. The stomach tube gives only temporary relief. The patient is restless, anxious and evidently losing ground. Auscultation of the abdomen reveals intestinal metallic gurgling sounds due to paroxysmal waves of peristalsis occurring at frequent intervals. The peristalsis forces the liquid and gaseous contents of the bowel to the point of obstruction and produces much pain. Urinalysis reveals albumin, casts and indican in increasing quantities.

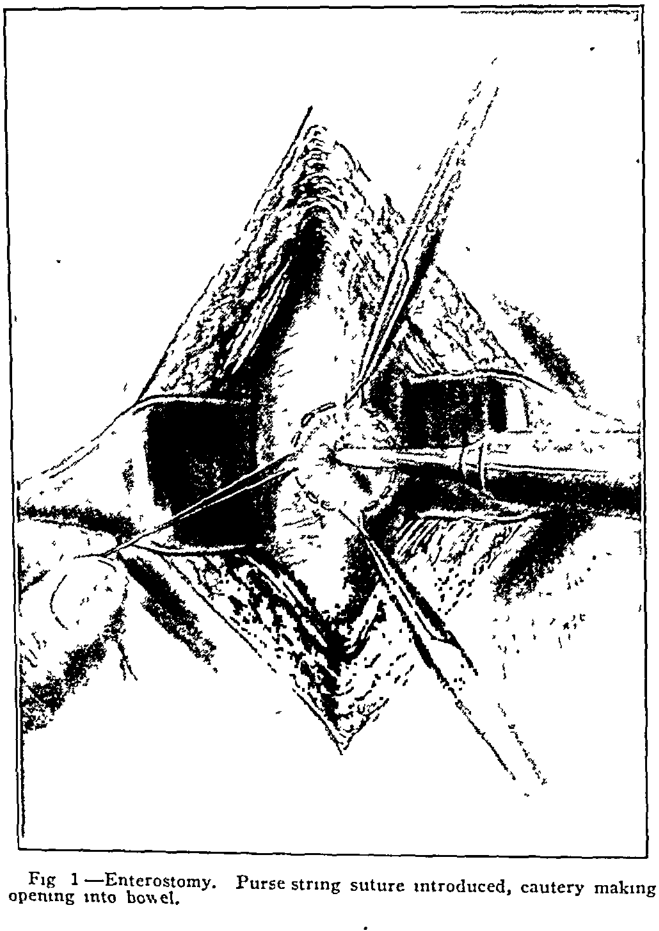

Fig 1.—Enterostomy. Purse string suture introduced, cautery making opening into bowel.

No wise surgeon gives purgatives under such circumstances. Enemas of every kind have been tried and failed. The patient's condition is getting desperate. Something must be done and that quickly. Often by this time not only the patient but the family as well have become demoralized. The thought of another operation only adds to the confusion. It is in cases of this kind that enterostomy offers the greatest relief.

If circumstances will permit, the patient should be gently removed to the operating room, where any measure can more conveniently be carried out. An enterostomy, however, can be done without moving the patient from the bed. With the judicious use of a local anesthetic and the persuasive words of the tactful surgeon, the entire operation may be carried out without producing either pain or fright.

Under the plea of "dressing the wound," a few stitches are removed and the edges of the incision gently separated. When the peritoneum is opened one should not search for the point of obstruction, unless it can easily be reached, but content oneself by dealing with the first distended coil of intestine which presents itself. The emphasis is on *distended*, since it is worse than useless to puncture the bowel below the obstruction. When the obstruction is purely mechanical and no sepsis is present, more freedom is allowable. Without disturbing the parts unduly a purse-string suture, preferably of chromic gut, is placed into the bowel wall. The needle should be introduced rather deeply. An area a good half inch in diameter is included (Fig. 1). By catching the suture at two equidistant points with forceps and the untied ends between the fingers, sufficient tension can be maintained to serve the double purpose of steadying the parts and reduce the soiling of the field to a minimum.

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* Read before the Southern Surgical and Gynecological Association, White Sulphur Springs, W. Va., Dec. 12, 1916.

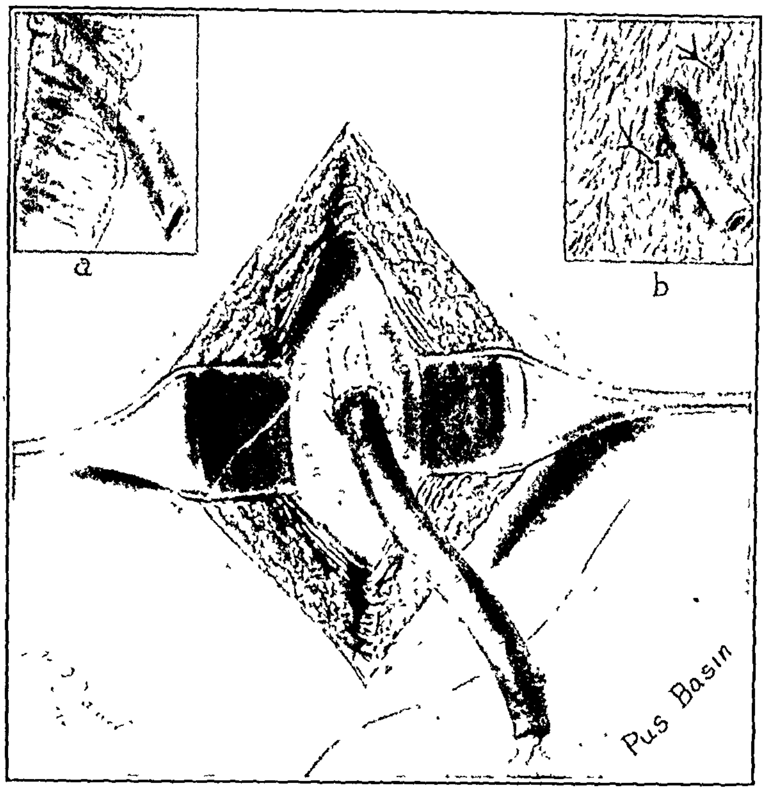

Fig. 2.—Enterostomy. Drainage tube in the intestine, purse-string suture tied. Inset *a* shows tube in bowel and two purse-string sutures applied. Inset *b* shows omentum which has been perforated and the tube drawn through it; two superficial catgut sutures hold the omentum snugly about the tube and intestinal fistula.

While the suture is being held as indicated in the illustration, the pencil point of a thermocautery is made to slowly burn a hole into the intestine. The cautery is preferable to the knife or scissors for several good reasons: 1. A burnt wound does not bleed, while a stab wound into the intestine occasionally severs a small vessel which requires ligating. 2. A perforation made by burning tends to contract rather than to get larger, which is an important consideration when dealing with an intestinal fistula. 3. The heat seals the various coats of the intestine together so that the edges do not separate or retract. 4. There is a notable absence of eversion of the mucosa which is seen in stab and pistol shot wounds of the intestine.

Before the perforation is made, the enterostomy tube should be prepared and near at hand, so that as the cautery point is withdrawn the tube may be immediately introduced and thus the escape of intestinal contents be avoided. The tube is preferably one of fairly soft rubber which will not collapse. It should be smooth and without enlargement of any kind. A tube twice the size of the opening can be easily introduced, since the bowel wall is sufficiently elastic. This disproportion between the size of the tube and the fistula causes the rim to hug the tube closely, which prevents leaking.

The forceps are now removed from the suture and the ends tied. With a little care the inversion of the edge of the perforation is easily effected (Fig. 2). If the condition of the intestinal wall will permit, a second purse-string suture adds to the security and increases the inversion, which favors the subsequent healing of the fistula by bringing a wider margin of serosa to serosa (Fig. 2, Insert *a*).

Whenever it is possible to do so, the omentum should be drawn about the tube and, if need be, stitched in place by one or two fine plain catgut sutures. A good plan is to puncture the omentum and pass the distal end of the tube through it (Fig. 2, Insert *b*). Utilization of the omentum with which to safeguard the intestinal opening both before and after the tube has been withdrawn cannot be too strongly emphasized.

Formerly I stitched the tubing to the intestine in order to secure it in place; but this is a mistake, since the suture from tube to intestine is liable to cut out of the intestine and increase the size of the opening. Besides, when the tube is subsequently removed, the anchor suture disturbs the inversion, greatly interfering with the healing. The tube is best secured by narrow strips of adhesive plaster to the skin (Fig. 3).

Unless the abdominal cavity is already shut off from the field of operation by adhesions, the open portion of the wound should be filled with fluffy gauze. The gauze will protect the peritoneum and promote the formation of adhesions.

When the perforation has been done with the cautery, the edges properly inverted, and the parts surrounded by omentum, the fistula usually heals of itself promptly. I have seen fistulas which did not leak a drop either before or following the removal of the tube. While there is no operation more serviceable than an enterostomy when indicated, there can be nothing more annoying than a fecal fistula which will not heal. The technic herein described reaps the benefits of the one and avoids in a large percentage of cases the evil effects of the other.

This method of doing enterostomy can be safely accepted as the standard. Also it may be said that, like the singing of the southern mocking bird, one of its chief beauties is the variations to which its technic is susceptible, and that, too, without departing from the principles involved in its standardization.

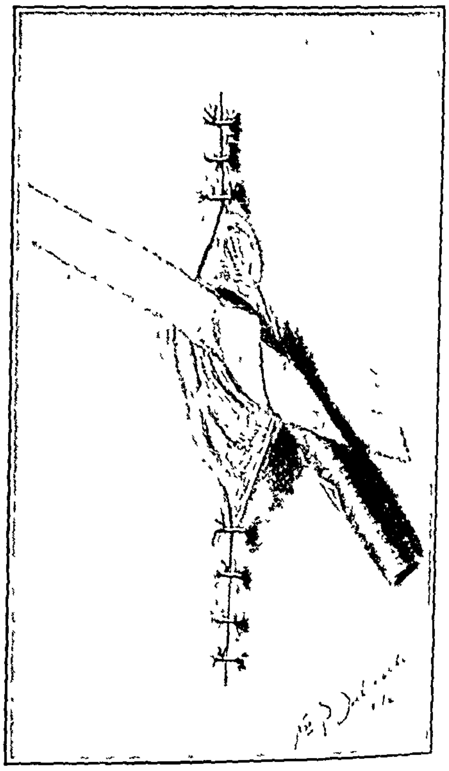

Fig. 3.—Enterostomy. Operation finished, rubber tube in situ and held in place by two narrow adhesive strips, the upper and lower end of the incision sutured. The portion of the wound about the tube is filled with fluffy gauze which prevents protrusion of the intestines and promotes adhesions.

For instance, the use of the appendix through which to insert a catheter for drainage is only a refined method of doing enterostomy. Under certain circumstances, it is not necessary to use a purse-string or, indeed, a suture of any kind. Occasionally, after the distended bowel is emptied, its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it as in a Witzel gastrostomy. This, however, is not often advisable, especially if the omentum cannot be utilized. Securing the fistulous area to the parietal peritoneum by a continuous suture after the manner of Kocher is not advisable unless a permanent fistula is desired. If it is thought expedient, the bowel may be anchored to the peritoneum with from two to four interrupted sutures. Should it not be practicable to open the abdomen through the former incision, it is easy enough to make an independent incision under local anesthesia. Other variations might be mentioned, but it is sufficient to say that a standardized technic once understood and approved can be easily adapted to meet the conditions found.

TRINITROTOLUENE POISONING

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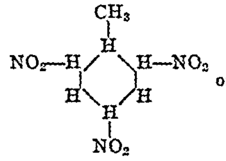
Trinitrotoluene, known in the munition industry as T. N. T., is the high explosive of the present European War. It has the graphic formula:



or $C_6H_2(NO_2)_3CH_3$

To explode trinitrotoluene it is necessary to bring it up to a certain heat and then produce concussion. Heat alone causes it to burn like gum camphor; concussion alone will not explode it. A shell filled with trinitrotoluene is usually exploded by placing in the nose of the shell a detonator containing another high explosive, such as fulminate of mercury.

In the manufacture of trinitrotoluene there is little danger of industrial poisoning, since the procedure takes place in closed retorts, etc., with consequently no exposure of the workmen to the fumes. In the filling of high explosive shells it is necessary to heat the flaked trinitrotoluene above its melting point, to about 94 C., and after letting it cool slightly to pour the molten resin-like substance into the steel shell and then allow it to solidify. It is during these procedures that the workmen are exposed to the heavy fumes emitted from the hot trinitrotoluene. (It has been shown that the vapor emitted from molten trinitrotoluene consists of a considerable amount of escaping trinitrotoluene. When the vapor strikes any surface having a lower temperature than 70 C., trinitrotoluene is deposited in the form of a fine crystalline sublimate. There is a definite scientific basis, therefore, for the supposition that poisoning can take place by inhalation of fumes emitted from molten trinitrotoluene.) It is afterward necessary to chip and scrape off the solidified explosive which has collected around the top of the shell. An accurate core must also be drilled into the solidified trinitrotoluene to make room for the detonator. During these processes, especially if proper protective machinery is not in use, the workmen are exposed to the yellow dust.

It is probable that trinitrotoluene poisoning has been known in Germany for some time. Reports of it, however, have not been made public. There has been little about it in the French or English literature until quite recently.

In 1915, in England, a committee was appointed under the chairmanship of Sir George Newman to make a report to the Ministry of Munitions on industrial diseases occurring in munition factories and workshops. In a part of their report, Memorandum VIII, the symptoms of trinitrotoluene poisoning are described, and measures for minimizing the risks are outlined.

In the early part of 1916, Spilsbury[1] demonstrated four livers presenting the following types of toxic hepatitis:

1. *Tetrachlorethane Poisoning.* — Tetrachlorethane is used to dissolve acetic cellulose in preparing a waterproof varnish for coating the wings of aeroplanes; it has been the cause of several fatal industrial poisonings in aeroplane factories, and the poisoning is commonly known as "dope" poisoning.

The liver showed irregular fibrosis and cellular destruction, with marked regeneration in one part and almost complete absence of fat.

2. *Dinitrobenzene Poisoning.* — The liver showed irregular fibrosis, little degeneration of cells, much bile duct proliferation and no fat. This was obviously an example of a chronic form of toxic hepatitis.

3. *Trinitrotoluene Poisoning.* — The liver showed marked reduction in size, irregular fibrosis and advanced fatty degeneration.

4. *Acute Yellow Atrophy.*—The liver was characterized particularly by absence of fat in the liver cells and marked fatty degeneration of the endothelial cells.

In August, 1916, Drs. Livingstone-Learmonth and Cunningham[2] described the symptoms and treatment of trinitrotoluene poisoning among women workers in some of the large munition plants in England. This is the first comprehensive description that I know of. The symptoms are mainly due to the inhalation and ingestion of trinitrotoluene dust. Exposure to the fumes alone might give the same effects, with the exception, however, that the irritating effects on the respiratory tract would be less. The symptoms observed were divided into irritative effects due to action of the poison on the skin and mucous membranes, and toxic symptoms due to degenerative hepatitis. The former include nasal irritation with occasional epistaxis, lacrimation and smarting of the eyes, a sensation of constriction in the throat, and dry cough with yellow, bitter sputum. Patients complained of a bitter taste in the mouth, of spasmodic gripping pains in the abdomen, of acid eructations and often of vomiting. Early in the intoxication there was obstinate constipation followed by diarrhea with tenesmus. The skin showed rashes of a cheiropompholix or eczematous type over the face and extremities, most prominent where sweating was greatest. The toxic symptoms included nausea, vomiting, anorexia, jaundice, mental depression, blurred vision, and transient peripheral neuritis. The poisoning often terminated in delirium, sometimes with coma or with convulsions.

More recently, the British Ministry of Munitions has published a concise summary of trinitrotoluene poisoning, covering the symptoms, prevalence and preventive measures.[3] The communication states that before August, 1914, there had been little practical experience of the toxic action of trinitrotoluene in England. During the past year there have been fifty cases of fatal toxic jaundice reported out of many thousands of workers engaged, proving that trinitrotoluene is dangerous to a small minority of workers coming in contact with it. Attention is called to a urinary test for detecting trinitrotoluene, which is of great value in the early diagnosis of cases. As regards the importance of predisposition, the communication says:

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[1] Spilsbury, B. H.: Demonstration of a Series of Livers Affected by Toxic Hepatitis, Lancet, London, 1916, **1**, 999.

[2] Livingstone-Learmonth, Agnes, and Cunningham, Barbara M.: The Effects of Trinitrotoluene on Women Workers, Lancet, London, 1916, **2**, 261.

> It would appear as though workers could be divided into two classes—the one (and much larger) insusceptible and remaining so, however much exposed; the other susceptible and liable to develop jaundice between the fifth and fifteenth week of their employment.

The duration of employment before the appearance of jaundice showed a remarkable uniformity. In 83 per cent. of the cases jaundice appeared between the fifth and sixteenth weeks of employment. In 105 reports on toxic jaundice not one patient had been employed for a period of less than four weeks. Only two fatal cases have been reported in which the worker had been employed more than four months. For the development of toxic jaundice in the susceptible, the exposure often needs to be only a slight one. A great number of cases occurred in persons below 18 years and over 50 years of age. Of the two cases of trinitrotoluene poisoning resulting in death, reported below, the first illustrates the common type of poisoning in which death results from hepatic failure due to an intense toxic hepatitis with extreme necrosis and autolysis of liver parenchyma associated with icterus. The second represents an unusual type of poisoning in which death results from an acute aplastic anemia without presenting evidence of toxic hepatitis or icterus.

The first case, I am informed by Alice Hamilton,[4] was the first fatal case of trinitrotoluene poisoning observed in this country, although Dr. Schultze[4] of New York, a few weeks before, had performed a necropsy on a man at the same munition plant in which he found lesions closely resembling those in this case.

The second case represents an unusual type of trinitrotoluene poisoning, having been observed only twice in the English cases, once with an associated toxic hepatitis with jaundice and once without these characteristic lesions.[3]

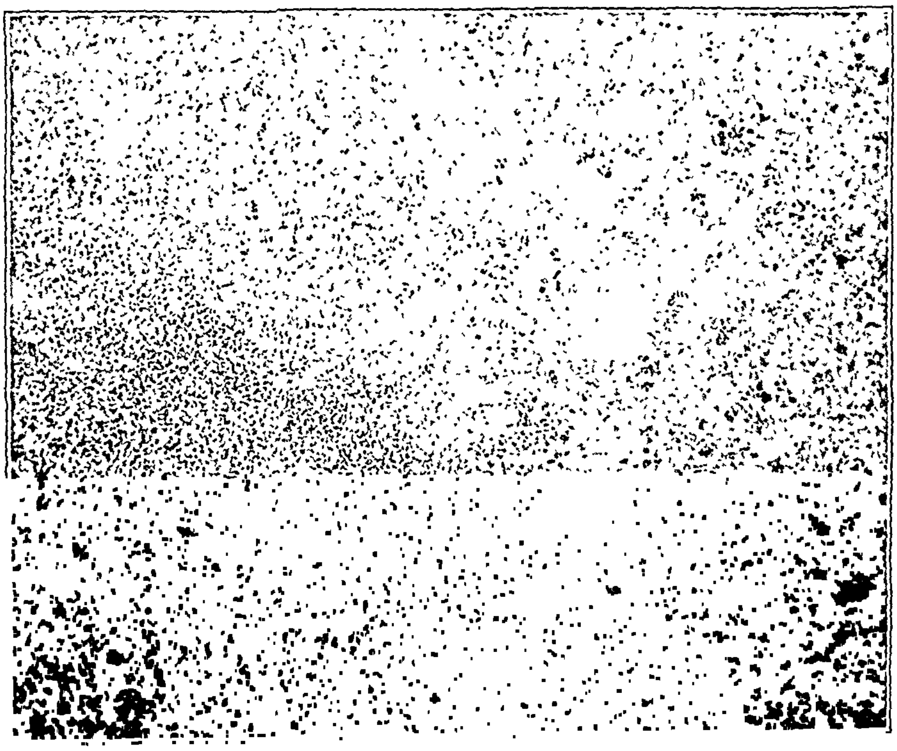

Fig. 1 (Case 1).—Section of liver showing extensive cloudy swelling, necrosis and autolysis of the greater part of the liver parenchyma; the periportal lymphocytic infiltration; hemorrhage in the parenchyma, and bile duct proliferation.

REPORT OF CASES

Case 1.[5]—*History.*—A white man, aged 24, who had always enjoyed good health, in April, 1916, started work in a munition plant devoted to the filling of shells with trinitrotoluene. He was employed in the mixing and stirring rooms, and his work consisted in dumping flaked trinitrotoluene into steam kettles, stirring it as it melted, and filling shells with the molten substance. There was no trinitrotoluene dust in the room. When he had been at this work for seven weeks, he complained to the factory physician of nausea and vomiting, slight abdominal pains and general weakness. The physical examination revealed a well nourished man with jaundice and tenderness in the epigastrium. He discontinued work, but grew gradually worse, and two weeks later was removed to a hospital, markedly jaundiced, vomiting persistently, prostrated and slightly delirious. There was no fever. He died in coma five days after admission.

The striking features of the case were the obstinate constipation, abdominal cramps, tenderness in the liver region, nausea and vomiting, prostration, progressively deepening jaundice, a low muttering delirium, anuria, and terminal coma. Similar symptoms are common in delayed chloroform poisoning, phosphorus poisoning, acute yellow atrophy, Weil's disease, and certain forms of fatal malaria. In all these diseases the symptoms suggest hepatic failure due to extensive destruction of liver cells.

Necropsy.—This was performed three days after death. As the body had been embalmed, it would be of little value to give the entire protocol. The anatomic diagnosis was: toxic hepatitis with extensive destruction of the liver parenchyma; toxic degenerative tubercular nephritis; icterus; cloudy swelling of heart muscle; increased blood destruction in the spleen, and secondary anemia showing considerable polychromatophilia. A striking feature was the intense jaundice. The skin of the entire body was a deep chrome yellow, and all the viscera were bile tinged. The anatomic changes of chief interest were those in the liver.

When the abdomen was opened, the free edge of the liver appeared two fingers' breadths above the free costal margin. The organ was small and contracted. The serosa was smooth, glistening and free. On section the cut surface as a whole was grayish except for blotchy red areas where the embalming was imperfect. The region of the efferent veins was generally light red, soft, and somewhat collapsed. The periphery of the liver lobule was greenish gray, hard and firm.

Microscopically there was cloudy swelling of the liver cells with extreme fatty degeneration, followed by necrosis and autolysis of the liver cells leading to extensive destruction of the liver parenchyma. This destruction was so extensive that the liver cells in their normal cordlike arrangement were no longer seen, except occasionally in areas around and near a portal space. In the middle and inner parts of the liver lobule around the efferent veins the liver cells were no longer recognizable. Around the periphery of the lobule there was extensive lymphocytic infiltration, chiefly of small lymphocytes with occasional wandering cells, but few polymorphonuclears. The bile ducts at the periphery of the liver lobules showed extensive regeneration and proliferation. Throughout the liver tissue there were areas showing fine, greenish, granular pigment; in places this pigment was so abundant as to form cordlike masses, the so-called bile thrombi. There were numerous scattered areas showing hemorrhage, the tissue being filled with erythrocytes. Sections stained for fat showed marked fatty degeneration of the liver cells, the few left often being filled with small, fine, irregular fat globules. The necrosis seen in the liver was so extensive and diffuse that it was quite impossible to ascribe to it any zonal distribution, but there was some evidence that it was more severe in the region of the efferent veins, the best preserved liver cells usually being in the region of the peripheral space.

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[3] Trinitrotoluene poisoning, Officially Communicated by the Ministry of Munitions, Lancet, London, 1916, 2, 1026.

[4] Personal communication to the author.

[5] Presented before the New York Pathological Society, October, 1916.

The picture was that of a toxic hepatitis characterized by extensive cloudy swelling, fatty degeneration and necrosis of the liver cells, most marked in the region of the efferent veins but not distinctly zonal in character; lymphocytic perilobular infiltration; bile duct hyperplasia; jaundice, and areas of extensive hemorrhage. The damage was beyond any known possibility of liver cell regeneration.

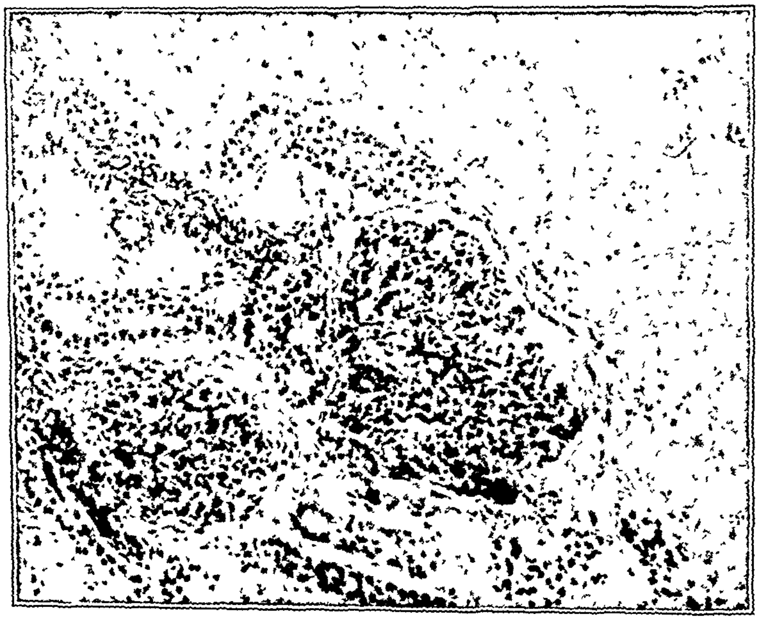

Fig. 2 (Case 1).—Section of kidney showing extreme cloudy swelling and fatty degeneration of the kidney tubules, and toxic degenerative tubular nephritis.

Case 2.—*History.*—A white man, aged 50, who had always been in fair health, for several months had been employed in a munition plant devoted to the filling of high explosive 75 millimeter shells with trinitrotoluene. During the last two months he was working in that part of the plant in which cores were drilled out of the solidified trinitrotoluene to make room for the detonators. His work consisted mainly in sweeping the floors, which, in spite of a system of compressed air exhausts connected with the drills for the prevention of inhalation of an ingestion poisoning, became covered with trinitrotoluene dust.

When he had been at this work for a few weeks he complained to the factory doctor of nosebleed. He later complained of epigastric pain, weakness in the lower extremities and violent headache. On a few occasions he had coughed up and vomited blood. He stopped work on his own accord because of extreme weakness.

He was then attended by his family physician, who found him complaining of frontal headache, loss of appetite, weakness of lower limbs and bleeding from gums. The temperature was 102 F., and the pulse 90, weak and regular. The next day he was no better, having considerable bleeding from the gums, headache and epigastric pain. The following day his temperature was 99 F, the pulse weak and at times irregular; toward night he became delirious. The delirium, which was of a low muttering type, became worse, coma developed, and he died four days after the onset of delirium.

While he was sick, the hemoglobin was 30 per cent. and his red blood cells below a million; the exact type of blood picture, however, I was not able to obtain. The urine showed a trace of albumin, with hyaline and granular casts; the exact details were not obtained. This was all the laboratory work done on the patient while he was alive.

The striking features of the case were a profound anemia associated with hemorrhages from the mucous and serous membranes, terminating in delirium, coma with fever, and death.

Necropsy.—The necropsy, performed shortly after death on the fresh, unembalmed body, revealed the chemical or physical origin of the fatal illness as acute aplastic anemia, with aplastic bone marrow.

The secondary or terminal lesions included: (1) hemorrhages from the mucous membranes, namely, the nose, gums, and small and large intestine; (2) hemorrhages from the serous membranes, namely, the parietal and visceral pericardium, endocardium, and piarachnoid; (3) low grade parenchymatous degeneration in the heart muscle, liver and kidneys, and (4) increased iron pigment in the spleen and the liver.

The diagnosis of acute aplastic anemia was based on: extreme pallor of the skin without icterus; preservation of body weight and nutrition; deep lemon yellow color of subcutaneous fat, well marked in the extrapleural fat; cloudy swelling in heart muscle, liver and kidneys of moderate degree; hemorrhage from the mucous membranes, as evidenced in blood clots around the gums and in the nostrils, with extensive bleeding in the small intestine, which, almost throughout its entire extent, was filled with a recent hemorrhage; hemorrhage in and from the serous membranes, as evidenced in multiple, extensive hemorrhages in the parietal and the visceral pericardium, in the endocardium and auricular walls, and scattered over the piarachnoid; increased iron pigment in the spleen and the liver, as shown in special stained sections of these organs; a replacement of the red bone marrow by fat tissue, there being no gross and little microscopic evidence of erythropoietic tissue in the bone marrow examined; and postmortem blood smears showing a profound anemia characterized by a great reduction in both red and white blood cells associated with little evidence of bone marrow regeneration, as shown by the absence of nucleated red cells, polychromatophilia, granular basophilia, etc.

The leukemias and leukanemias, both typical and atypical types, can be excluded. Pernicious anemia is excluded.

There was no evidence either in the gross or microscopic examination of the liver of a toxic hepatitis, other than the diffuse, low grade cloudy swelling of the liver parenchyma.

The etiology of the acute hemolytic aplastic anemia in this case is in my opinion "trinitrotoluene poisoning"; this is based mainly on the report of two similar cases in English literature,[3] both of which were described as very atypical types of trinitrotoluene poisoning. We have also the support of the clinical data, and the exposure to trinitrotoluene in a man 50 years of age, the latter fact supported by the observation of Drs. Livingstone-Learmonth and Cunningham that workers under 20 and over 50 years of age are particularly susceptible to the poisoning and should not be permitted to work in trinitrotoluene.

Time and Value.—Hippocrates truly said that art is long. The time occupied in doing an operation is no measure of the value of the service rendered. When Whistler in his action against Ruskin was sneeringly asked by counsel how long it had taken him to paint a picture which to the untrained eye doubtless seemed a hasty sketch in colors, his answer was "Twenty-five years."—*Brit. Med. Jour.*, Jan. 27, 1917.

PROSTATIC ABSCESS AND ITS SURGICAL TREATMENT

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Two cases of prostatic abscess, recently under my care, served as the stimulus to inquire more carefully into the etiology and therapy of this rather uncommon condition.

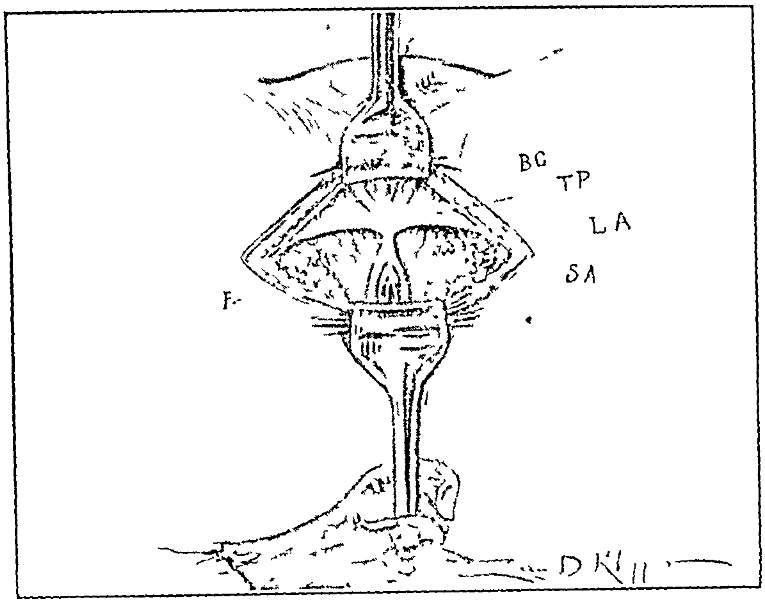

Fig 1.—Normal anatomy and relations of perineum· *B C*, bulbo cavernosus muscle; *T. P*, transversus perinei muscles and fascia; *L. A*, levator ani; *S. A.*, sphincter ani (superficial fibers); *F*, fat.

In spite of the frequency with which the prostate is affected in gonorrhea (Maelsch found prostatic involvement in 94 per cent. of all cases of posterior urethritis under his care), it is surprisingly seldom that actual prostatic abscess ensues. For example, Franz Marth reports from the files at the Bamberg Hospital but three cases, one following a recent gonorrheal infection, a second occurring in a patient with a tight stricture, and a third case in a normal individual in whom there was no apparent etiology. Sohngen reports but three cases from the extensive clinical material at Erlangen, none of which were associated with venereal infection. The reports of other authors are likewise meager as to the number of cases observed.

The etiology of prostatic abscess is interesting, as in certain cases the mode of entrance of the infecting organisms cannot be determined, and in others the primary focus of infection may lie remote from the genito-urinary tract. The most frequent factor, however, is venereal infection, usually with the gonococcus, which, during the course of a posterior urethritis, finds its way into the prostate and there may produce marked pathologic disturbances leading even to destruction of the major portion of the gland. In other cases abscess is due to invasion of other micro-organisms, usually the staphylococcus alone, but at times in symbiosis with other bacteria. Prostatic abscess may be dependent on a remote pus infection, for example furunculosis, or carbuncle, which may have been long healed before the outbreak of prostatic symptoms. The mechanism here probably is: An infected thrombus becomes loosened and the infecting micro-organisms thus carried along in the blood stream find their way into the prostate. It is in accord with our theory of the localization of infection to assume that the prostate offered a site of "lowered local resistance." This fact is given emphasis by the statements that motorcycle riding, falls or other traumas are important factors in the causation of prostatic abscess. Caspar found among 386 cases of prostatic lesions but six cases of prostatic abscess, or 1.5 per cent., while among this number there were 186 cases of the usual types of prostatitis. While in the majority of cases there is a definite history of gonorrheal infection, others occur in which the etiology cannot be determined, and still another group in which the prostatic lesion is consequent on a focus of infection elsewhere in the body.

The distinct disadvantage of permitting abscess of the prostate to evacuate itself spontaneously, aside from complications, is the frequent recurrence of the abscess at intervals for an indefinite period.

The older methods of drainage from the rectum I believe may be passed over as an unsurgical procedure. The method which should occupy our attention is the perineal drainage as recommended by Dittel, Thompson and Zuckerkandl. Their technic, while unquestionably sound surgically in conception and almost invariably curative, has the disadvantage of cutting through the central tendon of the perineum, which often leads to the patient's inability to have erection and ejaculation. The technic of the method mentioned calls for the cutting apart of the recto-urethralis muscle, and the division of the central tendon, the aponeurosis of the fibers of the sphincter ani and the transversus perinei superficialis. A modification of this method seems to me to offer advantages in that the central tendon is preserved, and that neither the origin nor the insertion of the various muscles is interfered with. The procedure is:

1. Skin incision concave between the two tubera ischii, the concavity directed toward the rectum at the middle of the depressio retrobulbaris, usually about 3 cm. in front of the anus.

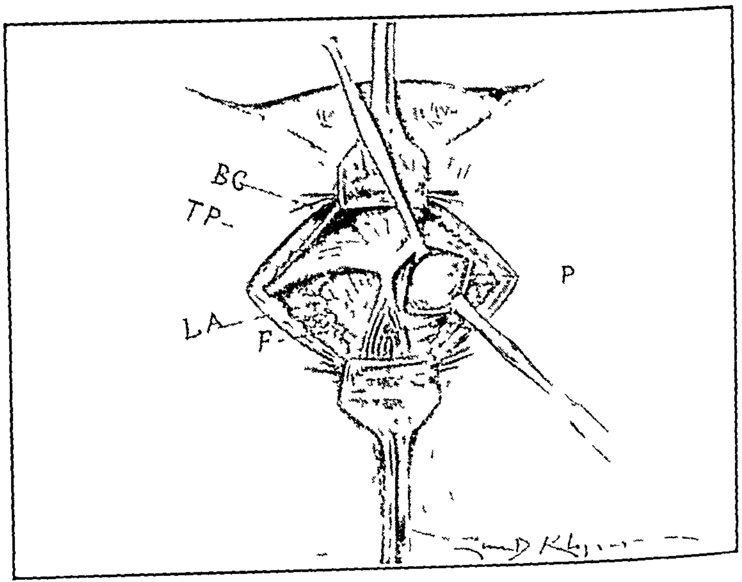

Fig 2.—Operative procedure, the retraction of the fascia and transverse perineal muscle, the splitting of fibers of the levator ani exposing the prostatic fascia *B. C*, bulbocavernosus muscle; *T. P.*, transversus perinei muscles and fascia; *L. A.*, levator ani; *F*, fat; *P.*, prostatic fascia and capsule.

2. Division of the often rather thick subcutaneous tissue and fat, exposing the superficial muscles and the central tendon of the perineum.

3. Entrance to the prostatic capsule, gained by dissection to one side or the other of the median line, as indicated by findings of rectal palpation. The fascia

and transversus perinei muscles, superficial and deep, are elevated and held by small retractors; and then by the splitting of the fibers of the levator ani in their long axis, the rectovesical layer of the pelvic fascia comes into view. This and the prostatic capsule then may be readily incised and drainage established. It is well to explore thoroughly with the finger and break down, if necessary, any fibrous septa so that the entire part involved may be thrown into a single cavity and thoroughly drained. For drainage a large caliber, soft rubber tube is best for the first twenty-four to thirty-six hours. After its removal, packing with sterile or iodoform gauze strips are most satisfactory. The drainage will last usually from three to four days, when the packing may be gradually withdrawn.

Guiteras and others recommend drainage by incising the prostate through the urethra with a guarded bistoury after perineal section. This technic seems to have the disadvantage in the first instance of not being under the vision of the operator, and secondly of producing a urethral fistula which, even under the most favorable circumstances, heals very slowly, and frequently leads to stricture.

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ECHINOCOCCIC BONE DISEASE

REPORT OF A CASE *

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AND
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The invasion of the osseous system by the taenia echinococcus is a rare event. Many surgical textbooks make either no reference or a cursory one to this disorder. After a careful survey of literature, reports of eighty-eight cases have been found.

The relationship of the liver to the alimentary tract makes obvious the relative frequency of involvement of that viscus; but for involvement of bones it would seem that the parasite must gain access to the vena cava, heart and general arterial circulation, although lymphatic distribution has been mentioned by some observers. Trauma appears to play an important predisposing rôle. Long bones most frequently are affected, and their epiphyseal portions are usually the primary focus of disease. A coexisting visceral and osseous involvement is exceedingly rare, and a satisfactory explanation of this fact has not been forthcoming.

The symptoms include a slowly progressive, painless increase in size of the bone, with spontaneous fracture in a number of cases. Only in the later stages is pain complained of. Several cases were not diagnosed until fracture had taken place. Roentgen examination shows rarefaction. Operative procedures reveal usually an inflammatory periosteal thickening with atrophy of the bone and enlargement of the medullary cavity. The echinococcic or hydatid condition is a polycystic one, and the medullary cavity is found to be closely packed with cysts of varying size. In the bone itself the process is a regressive one, and, with the atrophic changes, sequestrums of various sizes may be found.

A suppurative osteomyelitis has complicated the condition in a few instances. The cysts have smooth, yellowish interiors with occasional flat, warty projections. The fluid rarely contains scolices or hooklets, but there are certain characteristics, as described by Malenjuk, which are considered as important points in the diagnosis of the disease: (1) low specific gravity; (2) absence of albumin; (3) absence of mucin and paralbumin; (4) presence of succinic acid, and (5) absence of epithelial cells. Spontaneous fracture of a long bone after trivial injury, without tendency to unite, is a symptom that should be considered suggestive of the disease. The fluid seems to contain a toxic substance, for its resorption may cause urticaria, joint-pains, fever and syncope as the symptoms of a general intoxication. Moursson and Schlagdenhauffen have demonstrated in the fluid of a goat experimentally infected a "ptomain" which had the characteristics of protein split products. Boinet isolated a toxin which in small doses was fatal for mice, guinea-pigs and rabbits.

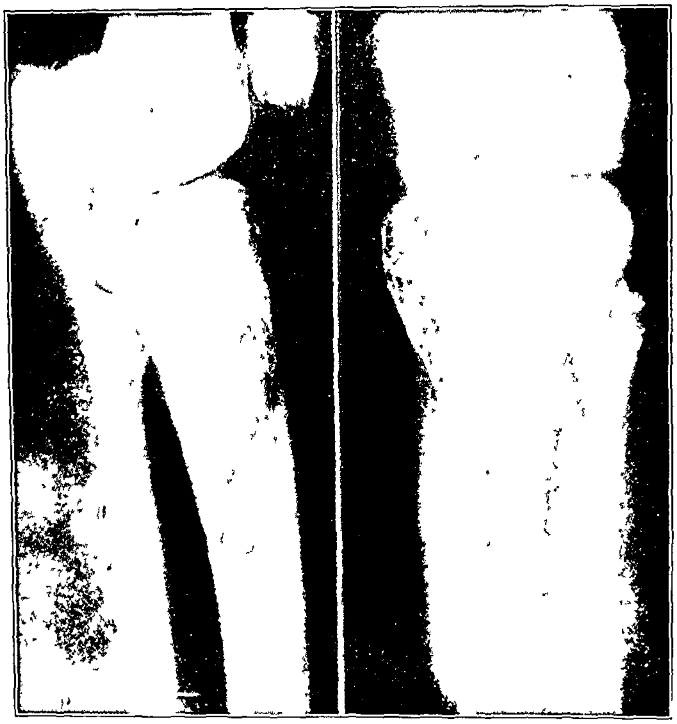

Fig. 1.—Echinococcic bone disease: condition on entrance of patient.

In the table of references the age and sex in fifty-three cases are noted. Of these, two were in the first decade, six in the second, sixteen in the third, thirteen in the fourth, seven in the fifth, seven in the sixth and two in the seventh. The youngest was 1 year old, and the oldest, 80 years. There were thirty-two males and twenty-one females. The frequency of involvement of the various bones was: pelvis (one or more bones), thirty-two cases, or 36 per cent.; femur, sixteen cases; sacrum, thirteen cases; humerus, ten cases, and tibia, nine cases. The clavicle, radius, ulna and fibula would appear to be the only large bones unaffected.

Of 1,950 echinococcus cases in literature, Alexinsky found only thirty-seven (1.9 per cent.) with bone involvement, and Gangolphe, fifty-two of 3,000 cases (1.7 per cent.).

REPORT OF CASE

History.—T. P., man, aged 31, Greek, pipe-helper, was admitted, July 31, 1915. The family and previous personal history were negligible. The present condition would seem to have begun three years before, when the patient noticed severe aching pains in the upper third of the left tibia. These were paroxysmal in character and worse at night. At times the leg became much swollen in the region of the pain. There was no history of trauma. There seemed to have been no suspicious contact with dogs.

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* Because of lack of space, this article is abbreviated in The Journal by the omission of a table of references. The complete article appears in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

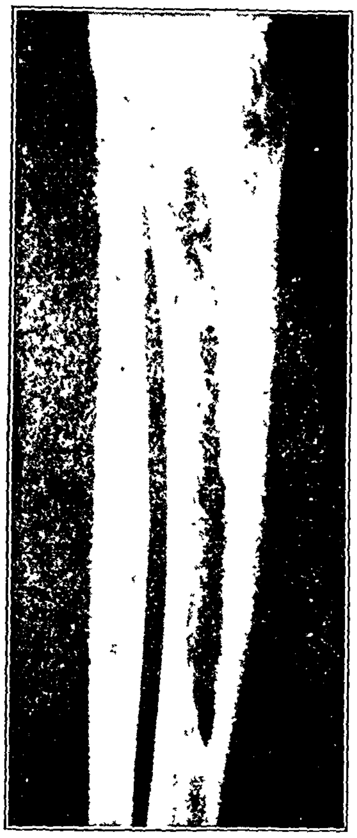


Fig. 2.—Condition after first operation.

Examination.—The patient was very poorly nourished. Except for weakness and irregularity of heart action there appeared nothing abnormal in head, trunk and arms. The left leg showed slight increase in size of the upper third and some tenderness on deep palpation. Scars over the lower third of the thigh and leg would indicate old injuries. A roentgenogram revealed a cystic condition of the tibia through its upper third. Urinalysis revealed: specific gravity, 1.034; acid; albumin and glucose negative. Blood pressure was 120 mm. systolic, and 85 mm. diastolic. Tuberculin reactions and two serum Wassermanns were negative. The blood, on admission, was: leukocytes, 6,400; May 4, 1916, erythrocytes, 4,440,000; leukocytes, 12,220; neutrophils, 70 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 10 per cent.

Treatment and Course.—The localized pains and edema continued, and on the fourteenth day after admission the tibia was opened and curetted. Atrophy of the bone and enlargement of the medullary cavity were noted. Many cysts of various sizes were found throughout about two thirds of the length of the bone. The interior surfaces of these generally were smooth, but occasional warty projections were evident. No scolices or hooklets were found in the fluid, which was slightly yellow. Albumin and epithelial cells were absent. Succinic acid could not be demonstrated. A well defined lamination of the cyst walls was observed. The bone cavity was cauterized with alcohol, packed, and drainage established. Beginning two days after the operation, the temperature rose and maintained an average of 99 F. for one week. After a time the patient complained again of pain, and, November 16, the sinus was opened, curetted and packed. No cysts were found. This gave some relief, but moderate pain persisted. About four months afterward he complained of increased pain and on a swabbing out of the wound a collapsed cyst appeared. A curet withdrew another intact one. April 6, 1916, a more radical operation was done with enlargement upward of the skin incision to the articular surface of the bone, and a large amount of cancellous tissue was chiseled out. There were found a number of small cysts separated apparently by normal bone. The cavity was swabbed out with pure phenol (carbolic acid) followed by alcohol and then packed. The wound healed slowly by granulations, without infection. Gauze dressings alternately with camphor, phenol and 10 per cent. black oil (balsam of Peru in castor oil) were employed. After the third operation the leg was exposed daily to the sun's rays for a period of about two hours (when the weather permitted). The wound completely healed, and the patient was discharged, Aug. 10, 1916, walking with the aid of a cane. The total time spent in the hospital was 377 days.

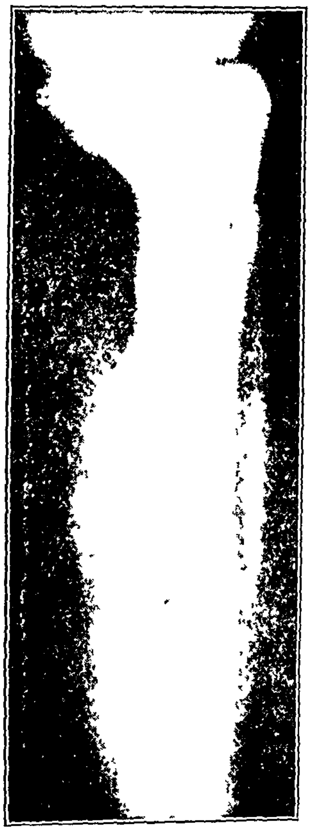


Fig. 3.—Condition on discharge of patient.

November 22, the leg was healed, but the patient had been unable to work. He felt well.

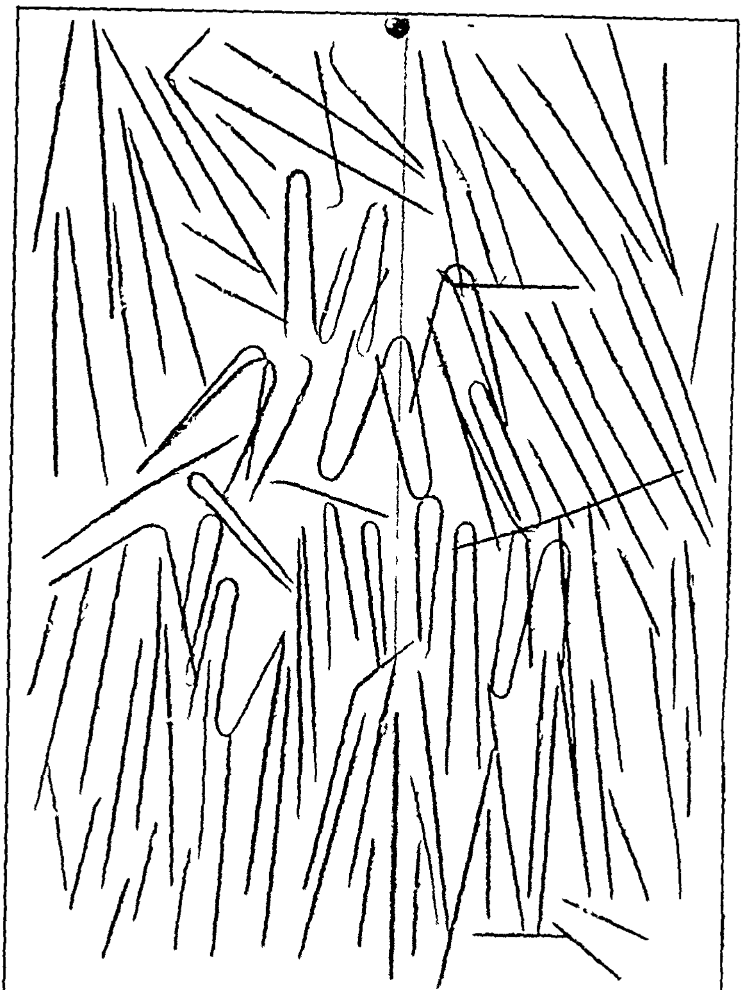
One month later he felt quite able to work but had not returned.

Southern Pacific General Hospital.

BOLUS OF NINETY-FIVE HAIRPINS REMOVED FROM THE STOMACH

James T. Nix, B.S., M.D., New Orleans

The case here reported is unusual in many respects, and although the articles swallowed were simply hairpins, their intimate impaction with the chronicity of development characterize the tumor as a bezoar.



Hairpins and remnants of hairpins removed from the stomach.

Miss O. A., white, aged 35, born in Spain, gave a negative family history as regards dementia, though all of the immediate relatives are distant, retiring, and elusive to strangers. The previous history was unimportant. The onset of the present complaint dated back about three or four years, since which time the patient had gradually, though progressively, failed in health and strength. She suffered constantly from vague, though sometimes acute, lancinating, abdominal pain, digestive disturbance or other intestinal disorder. The mother had frequently consulted physicians regarding her daughter's condition, but, because of her annoying secretiveness, persistent irritability and expressed aversion to doctors, a satisfactory examination was impossible, and diagnosis a guess. During the past two months a septic temperature had always been present; the extreme toxemia with its depleting, concomitant syndrome confined the patient entirely to bed. Solid food was vomited immediately. Bland unirritating liquids could be retained if given in small quantities. The daily temperature oscillated from 99 to 102, the pulse from 120 to 125, and respirations from 20 to 25. The patient's mental condition was far below par. The patient was extremely emaciated, weighing probably 75 pounds. She was profoundly anemic, and the lower limbs were edematous. The heart, lungs, liver and kidneys were normal. The musculature of the entire body was flabby and devoid of tone. The abdomen was slightly distended with fluid, and a hard tumor was palpable just below the umbilicus. As the patient lay in bed, the thighs were constantly flexed on the abdomen. Urinalysis was negative.

Blood examination revealed a slight leukocytosis with decrease of red cells proportional to the degree of emaciation and anemia. The gravity of the case did not justify further delay for diagnostic purposes, so an exploratory operation was deemed expedient with the provisional diagnosis of tuberculous peritonitis. A bezoar was unsuspected. Because of the lowered mentality and extreme obstinacy of the patient, careful palpation of the abdomen was impossible, and even the local preparatory measures for operation, shaving and cleansing, had to be carried out in the operating room while the subject was anesthetized. The abdomen was slightly distended with fluid and very painful. For these reasons the tumor was not recognized prior to operation.

A median incision was made below the umbilicus. On general survey the most noticeable and only apparent abnormality was the extreme ptosis of the stomach below the umbilicus, evidence of a low grade of peritonitis, and the presence of a small amount of clear fluid in the general cavity. Manual exploration disclosed a normal pelvis, appendix and gallbladder. The stomach was filled with a hard, tumor-like mass having many sharp points which pierced and were embedded in the indurated gastric wall. Gastrotomy revealed these to be numerous hairpins, which had been sharpened and pointed by the churning movement of the stomach together with the corrosive action of the free acids. Ninety-five pins or remnants were removed, some pointing high into the esophagus, others low into the duodenum.

The patient did not improve after the operation, but died of exhaustion on the seventh day.

The important lessons to be learned from this case are:

1. Corroborative testimony that bezoars, other than trichobezoars, occur most frequently among the insane.
2. The demand for roentgenoscopy in all obscure abdominal conditions.
3. The unusual feature that nothing other than hairpins were found in the stomach.
4. The remarkable digestive powers of the gastric juice, every hairpin being somewhat eroded and many almost entirely destroyed.
5. Nature's prolonged fight against such odds, extending probably over a period of three or four years, as only one of the entire group retained the identity of a hairpin, showing that the mass had been in the stomach for a considerable time and that none had been swallowed since the patient was under such close observation. The thickened indurated gastric mucosa, in places as much as ½ to 1 inch, gave additional testimony to the chronicity of development.

Bezoars should always be considered as one of the possibilities in the differential diagnosis of obscure abdominal tumors. We should keep ever on our guard, use the Roentgen ray frequently, and remove the abnormality as early as possible.

1407 Carrollton Avenue.

The Hospital and Medical Training.—Much emphasis is placed nowadays on the clinical training of the medical student, and it is obvious that such training cannot be given by a medical school which does not command the facilities of a suitable hospital. Hospitals that disinterestedly lend themselves to the purposes of medical education are pursuing a wise social policy, and are serving many patients besides those in their wards.—S. S. Goldwater, M.D., *Modern Hospital*, November, 1916.

THE VISUAL REQUIREMENTS OF MILITARY AVIATORS

CHARLES P. SMALL, M.D.
CHICAGO

The advent of the aeroplane in modern military equipment has made it necessary to modify to some extent the method of physical examination of applicants. Because of the unusual and, until within a few years, the absolutely unknown conditions which the aviator must encounter, there must be a special standard of physical fitness, quite different in some respects from that required of men in other branches of military service. In times of peace the physical standard in all branches of the service should be maintained at the highest possible point. In time of war, when the need for all available fighting forces is urgent, the physical requirement of recruits might have to be considerably lowered. To lower the standard required of aviators, however, even in time of war, would be to incur the danger of most serious risks.

Military writers on the different European battle fronts tell us that if an infantry attack is to succeed there must first be a perfect artillery preparation. There can be no such preparation unless all the targets are accurately located and the exact firing data necessary to hit them previously determined. This is done by taking large numbers of photographs of the enemy's position. The various batteries are then assigned their targets and commence their ranging fire. Trained observers in aeroplanes fly above the targets and signal back to the batteries whether they are over or short, etc.; other aeroplanes observe the progress of the attack, and from time to time report to the general in command. Such work as this necessitates a thorough and long continued reconnaissance, which can be made only by highly trained observers in aeroplanes many times a day for many days. To succeed in this work enemy aeroplanes must be destroyed or driven away by the use of a superior number of fighting aircraft. As one of our modern army men has said, "The preparation and carrying out of a modern attack are absolutely dependent on a proper aviation service. We have in the United States no fast armed machines capable of bringing down such battle machines as every European nation now possesses. We have no officers properly trained in photographic reconnaissance, in the observation of artillery fire, and in the keeping of proper communication between assaulting artillery and infantry, and between it and the general command." These facts are referred to only to emphasize the importance of having for this work men in our service endowed in the highest degree with physical fitness.

In a recent article in one of our military publications on the examination of aviators, the writer devotes over two pages to the examination of the labyrinths. It is of the utmost importance for the aviator to possess normal functions presiding over the maintenance of bodily equilibrium under a definite set of conditions. I believe, however, that it is of equal importance to know the ocular conditions present: not only the visual acuity but also the entire ocular apparatus, a phase of the examination to which the writer devoted only a single paragraph. Assuming that the applicant has successfully passed the other requirements of his physical examination, what should be his visual requirements?

Huss (Marine-Oberstabarzt), in his recommendations for the eye examinations of flyers,[1] includes the history, objective examination, refraction, acuteness of vision, visual fields taken roughly by the hand, and the pupillary reaction.

Unless the subheading "objective examination" is more comprehensive than would generally be included under this term, it seems to me that there are a number of important omissions in this list for the routine examination.

Visual acuity of $^{20}/_{20}$ in each eye is, of course, of prime necessity. This is a much higher standard than is required of recruits in most of the continental armies. In the British army, the standard for general service requires, without correction, vision of $^{6}/_{24}$ in the better eye and $^{6}/_{60}$ in the worse eye, which must be the left. In Germany, combatants are required to have corrected vision of at least $^{6}/_{12}$ in one eye, while in the other the corrected vision may be minimal, and in the Landsturm the second eye may even be blind. In the armies of Germany, Austria, France and Italy, more than 6 diopters of myopia are allowed. Because of the constant demand on the eyes for absolutely clear vision, from the time the aviator begins his ascent until he has made a safe landing, a visual acuity of less than $^{20}/_{20}$ vision in each eye might be a serious handicap. Even with normal vision in each eye, the aviator must have normal binocular vision, as otherwise his estimation of distances and of the relative locations of places and objects would be valueless, and his own safety as well as that of his machine would be in serious jeopardy when he attempted to make a landing. There should be normal muscle balance as well as good abductive and adductive power. While in the air the aviator's eyes are in constant motion and would quickly tire under the excessive strain on weak ocular muscles.

The presence of nystagmus should disqualify an applicant. Of the considerable numbers of miners who have applied for army service in England, Huss[2] says it is the opinion of the examining surgeons that it is a serious mistake for men who have the slightest tendency to nystagmus to be subjected to the arduous strain of military service. Attacks of giddiness may come on at any time. It can be readily understood how much more liable to such attacks the aviator would be. To attempt to measure rightly the field of vision by the confrontation method might mean the overlooking of a sector of considerable size in some part of the periphery, to say nothing of the presence of scotomas. Moreover, in any suspicious case a perimetric chart of the fields would be of great value in a subsequent examination. A cycloplegic should be used in all cases, not only for determining the absolute refraction, but also in order to see the peripheral parts of the fundus and to detect any evidences of a previously existing iritis or uveitis. The visual requirements of the aviator are somewhat similar to those of the chauffeur, and it is interesting in this connection to note that an English observer has shown concrete instances of men with serious defects of vision driving vehicles on the crowded public thoroughfares. Men with 12 diopters of myopia, with disseminated choroiditis, with nystagmus, and even with occlusio and seclusio pupillae from chronic iridocyclitis have been detected. This at once suggests the need of a law requiring a rigid eye examination for chauffeurs.

One of the most important features of the eye examination seems to have been altogether ignored, namely, the examination of the color sense. We have learned that in former years, before color blindness was known to be such a common affection, ocean disasters and railway collisions resulted in a number of instances solely because of the inability of the pilot or engineer to distinguish between the red and green signal lights. In these days no color blind man can ever hope for a position as railroad engineer or as a naval officer. The military aviator's duties require in no less degree normal color sense. At a height of a few hundred feet from the ground it would be impossible for a red-green color blind observer to distinguish red uniforms of soldiers from the surrounding green foliage, even in the most favorable atmospheric conditions. His difficulties would be multiplied in cloudy or hazy weather. It is known that among all classes of males, regardless of birth or education, about 4 per cent. have defective color sense. Of over 300 men who recently applied for examination for aviators in the officers' signal section of the Medical Reserve Corps, only eighty-six were found eligible for the examination, and of these eighty-six, only thirty-nine passed a successful physical examination. Of these thirty-nine selected men, one was rejected on account of color blindness. This would indicate a ratio of over 2 per cent. of color blindness in otherwise physically perfect men. The desire for adventure with its attendant element of danger is undoubtedly a strong inducement for young men to enter this branch of the service. Their bitter disappointment in failing to qualify is sufficient proof that tests for malingering are not necessary. The one man referred to declared that he could distinguish all colors perfectly, and it was only after proving to him by three different tests, all of which showed the same results, that he finally admitted that he did have some difficulty in seeing red lights when driving an automobile.

In our limited experience, but little has been reported on the effects of dazzling. In European countries, however, this factor has been of sufficient frequency to receive some attention. Some form of tinted lenses mounted in padded goggle frames should be worn as a protection against dazzling, as well as to shield the eyes from wind and dust. One flyer told me that, at a height of several hundred feet above a sand bank, fine particles of sand struck his face with the intensity of needle pricks.

Emergencies may arise at any minute calling for instant action. A faulty action of the engine, for instance, or the sudden appearance of antiaircraft guns necessitates a quick change of course. In order to estimate the length of time it requires to respond after receiving a visual impression, applicants for aviation service in France are required to undergo a psychophysical examination. By means of the d'Arsonval chronometer it has been determined that a good candidate for aviation requires about $^{19}/_{100}$ second for visual reactions.

There should be a reexamination of the eyes at least once a year. Until the beginner has had a few weeks of actual experience, he cannot know the effect on his eyes. The sensitiveness of the retina, endurance of the eye muscles, etc., can be determined only after practical trial.

SUMMARY

The successful applicant for army aviation service should have:

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[1] Translated in U. S. Naval Med. Bull., Jan. 14, 1917.

[2] Huss: Brit. Med. Jour., March 4, 1916.

1. Uncorrected vision of 20/20 in each eye.
2. Binocular vision.
3. Absence of nystagmus.
4. Normal muscle balance and competent ocular muscles.
5. Normal pupillary reaction and no pupil irregularities when dilated.
6. Normal media and fundi.
7. Normal visual fields, by perimetric examination.
8. Normal color sense.

7 West Madison Street.

HORSE ASTHMA

TREATMENT OF A CASE WITH NORMAL HORSE SERUM

C. R. Zener, M.D., White Salmon, Wash.

Mrs. L. B., aged 28, widow, came under my care in July, 1916. The family history was negative. She had been subject to severe attacks of horse asthma since childhood, whenever she was near horses for a few minutes. She could neither ride nor drive for this reason. Two years ago she had the anterior portion of both lower turbinates removed, on account of nasal obstruction, with no effect on the asthma, and only slight relief of nasal obstruction. The personal history otherwise was negative. The patient was not neurotic.

July 4, I rode horseback with the patient and witnessed an attack. Thirty minutes after beginning the ride she began to sneeze, and at the end of an hour she was almost prostrated, with constant sneezing, severe lacrimation, intensely congested sclera, considerable edema of glottis, and complete nasal occlusion.

August 1, I gave the patient 25 c.c. of normal horse serum intravenously. By the time half the dose was introduced, she began to sneeze, and within a few minutes she was undergoing a severe attack of horse asthma, similar to the one I witnessed in July, only with symptoms more pronounced, if possible, especially the glottic edema. Under applications of epinephrin solution, 1:1,000, the edema subsided.

About two weeks later on exposure to horses she developed an attack of asthma, milder than usual. At the end of three weeks I gave 12 c.c. intravenously without any reaction. This was followed at intervals of about two weeks with doses of 25, 40 and 60 c.c. hypodermically, without any reaction.

Now, six months later, she reports that she has not had an attack since the second dose of serum, that she rides and drives at pleasure, has gained in weight and is delighted with the result.

THE PNEUMOCOCCUS FOUND IN A CASE OF STILLBIRTH

Edward L. Cornell, C.B., M.D., Chicago
Member of the Staff of the Chicago Lying-In Hospital and Dispensary and Post-Graduate Hospital

Recently Dr. Joseph B. De Lee[1] reported three cases of infection as a cause of stillbirth. To this list I wish to add the following case (Case 90153, Michael Reese Hospital): The patient, aged 26, married four years, came under my care, May 4, 1916. She had had a stillbirth with the first child at full term. At this delivery it was stated that the child had a nasal discharge. No cultures were made. The infant weighed 7½ pounds. Two years later she had a miscarriage which required a curettement. The perineum was repaired at that time. The date of her last period was Oct. 9, 1915. Life was felt about the fourth month. In May the patient complained of feeling weak and of severe cramps in the abdomen. Under appropriate bowel medication she improved. She has had frequent nosebleeds for years. The appendix had been removed three years before; the tonsils had been removed six years before (apparently clipped or incompletely removed). The patient's habits were regular, and she did not use alcoholics.

Examination revealed a nervous woman, whose general appearance was good. The blood pressure was 130-70. The measurements were external, 23-26-28-19 cm.; internal diagonal, 12 cm. Urinalysis was negative. June 21, 1916, the blood pressure was 120-70. The patient felt well, and the urine was negative.

July 19, 1916, the patient was still in good condition. The child, though not a large one, was kicking well. The head was still floating. The heart tones were good, the rate being 132.

Aug. 3, 1916, at 8 p. m., the patient was admitted to the hospital, having been in light labor since 2 p. m. On rectal examination the cervix was dilated two fingers and thin. The head was not engaged. The fetal heart rate was 140. At 10:30 p. m. there was a dilatation of three and a half fingers. The fetal heart rate was 136. The head was fixed in the pelvis in right occipito-anterior presentation. At 1:30 a. m. the same findings were present. The pains were then becoming stronger. The heart rate was: 12 p. m., 140; 1 a. m., 132; 2 a. m., 132; 3 a. m., 132; 4 a. m., 124; 4:20 a. m., 124; 4:42 a. m., 116; 4.50 a. m., 112.

The bag of waters was ruptured artificially at 4:50. Before artificial delivery could be accomplished, the infant died. The liquor amnii was filled with meconium. At 6:20 a. m., 3 minims of pituitary extract were given to stimulate the pains, and a female was born at 7 a. m. It was in a state of asphyxia pallida. The weight was 6 pounds, 5 ounces. Necropsy on the infant revealed nothing pathologic, except that all the serous cavities contained more fluid than is usual.

Cultures were made from the dura, pericardium, nose, heart's blood and pleural and abdominal cavities. The pericardium gave a pneumococcus and a gram-positive bacillus. The pleural cavity gave a pneumococcus and a staphylococcus. The Wassermann reaction was negative.

A Wassermann test on the mother was also negative. A culture from the tonsil crypts and from the vaginal discharge showed the pneumococcus and the staphylococcus in each. In spite of this, the episiotomy wound healed by first intention.

It is my purpose to attempt to deliver a live baby later by having the mother's nose and throat put in good condition and to keep on the lookout for a focal infection by having the blood and vaginal secretions examined for pneumococci and staphylococci.

The bacteriology was done in the hospital laboratory.

122 South Michigan Avenue.

A CASE OF MULTIPLE PREGNANCY, RUPTURED, TUBAL AND UTERINE

E. A. Sullivan, M.D., Amboy, Ill.

Mrs. J. S., aged 42, tertigravida, May 6, 1916, at 4 p. m., while doing housework, was seized with an agonizing pain, referred to the diaphragm. When I saw the patient she was pale and had a pinched facial expression. The pulse was dicrotic; the rate was 160. The temperature was subnormal. At this time I administered ½ grain of morphin hypodermically to relieve the pain. On examination I found the uterus somewhat enlarged, the cervix elongated, the external os patulous. There was a serous bloody discharge. At this examination nothing abnormal was found in the culdesac or abdomen; but two hours later a tumefaction in the culdesac suggested ruptured tubal pregnancy. The patient was moved to the Amboy Hospital, and Dr. Karl F. Snyder of Freeport was called to operate.

The pelvis and culdesac were filled with clotted blood and a fetus; these were removed and the bleeding tube ligated and sewed; drainage was put in and the abdominal wound sewed up. During the operation pressure on the uterine walls outlined a fetus in the uterus, leading to a diagnosis of multiple pregnancy. The patient was removed from the operating room and put in the Fowler position. Physiologic sodium chlorid solution was given with epinephrin solution hypodermically to combat shock. The patient made an uninterrupted recovery and, December 24, was delivered of an 11 pound boy.

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[1] De Lee, J. B.: A Bacteriologic Study of the Causes of Some Stillbirths, The Journal A. M. A., July 29, 1916, p. 344.

AURICULAR FLUTTER DETECTED BY THE FLUOROSCOPE *

George W. Holmes, M.D., and Paul D. White, M.D., Boston

The fluoroscope has often been used in the examination of arrhythmic hearts. The discovery, however, of an unsuspected auricular flutter during a routine chest examination of a patient with suspected gastro-intestinal lesion is of such interest that it deserves special mention.

History.—G. B., man, aged 62, employed for over forty years as painter and paperhanger, referred to the Massachusetts General Hospital for diagnosis, complaining of indigestion, had always been well until four months before visiting the hospital. At that time attacks of pain in the region of the umbilicus began. They were most frequent early in the morning, waking the patient at about 2 o'clock and compelling him to rise and pace the floor. Gradually the pain had become more persistent, until it was present much of the time. Hot applications gave some relief. There had been no nausea or vomiting. No relationship could be discovered between the kind or time of meals and the pain. Yet the patient had been afraid to eat much and had lost 30 pounds in weight in the four months. He was slightly constipated. There had been no weakness of the hands or feet, and no dyspnea, edema or precordial pain.

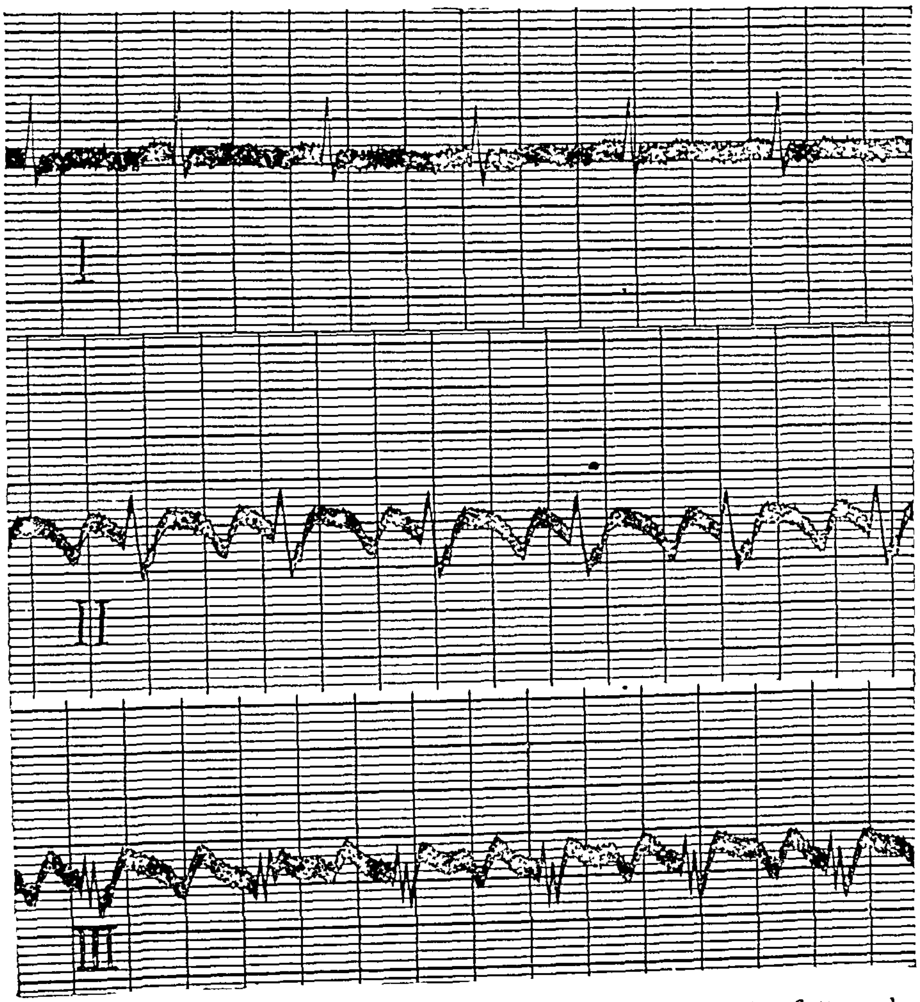

Fig. 1.—Leads I, II and III of electrocardiogram showing auricular flutter; abscissa, 0.2 second; ordinate, 10⁻⁴ volt.

Examination.—The patient, June 30 and July 7, 1916, was pale and underweight. All the teeth were false. The tongue was coated. The pupils reacted normally. The lungs were normal. There was slight enlargement of the heart to percussion; the apex impulse was in the fifth space. The action was regular and rapid (115 a minute). The sounds were faint and clear. There was absence of abdominal tenderness, spasm and masses. The liver and the spleen were not felt. There was a marked venous prominence at the costal borders. There was a double inguinal hernia. Rectal examination was negative. The reflexes were normal. The temperature was normal. A blood smear was normal; there was no stippling. Hemoglobin was 90 per cent. The urine was cloudy; specific gravity, 1.022; there was no albumin or sugar; the sediment showed nothing remarkable. Fluoroscopic examination by means of a bismuth meal showed no abnormality in the gastro-intestinal tract.

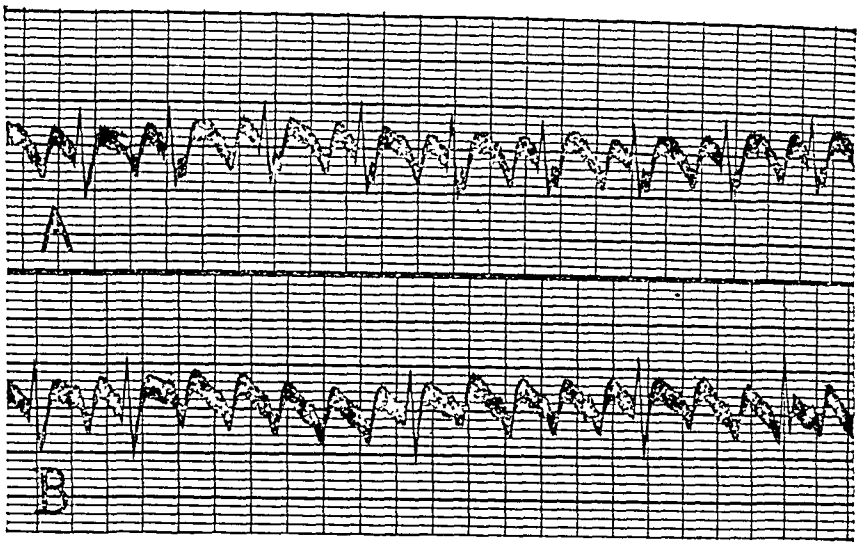

Fig. 2.—Lead II of electrocardiogram showing auricular flutter: *A*, before vagal pressure, *B*, during right vagal pressure; abscissa, 0.2 second; ordinate, 10^{-4} volt.

Fluoroscopic Examination of Heart.—The right and left borders were clearly outlined, the left border pulsating regularly at the rate of 115 a minute and the right border regularly at apparently twice the rate. A diagnosis of auricular flutter was made and confirmed a few minutes later by the electrocardiograph.

Electrocardiograms.—There was auricular flutter with 2:1 A-V block. The auricular rate was 230, ventricular rate, 115 (Fig. 1). Right vagal pressure increased instantly the grade of block, bringing out clearly the separate auricular deflections (Fig. 2.).

Unusual Foreign Bodies in the Rectum.—It is not unusual to find foreign bodies in the rectum which have been inserted by the patients themselves, who are usually sexual perverts. I recently had three cases in which the object inserted was an ordinary jelly glass. Another case proves that glass electrodes inserted into the rectum for the treatment of hemorrhoids and prostatic troubles are not without some danger. In this case, a physician was using an ordinary high-frequency glass electrode for the treatment of the prostate. The tube suddenly exploded while inserted 3 or 4 inches into the patient's rectum. It was broken into many pieces, and I removed it with considerable difficulty. The bowel, however, was not lacerated, and the patient suffered no injury.—William H. Kiger, M.D., Los Angeles.

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* From the Massachusetts General Hospital.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1916

FIFTH ANNUAL REPORT

THE JOURNAL presents herewith its fifth annual survey[1] of typhoid fever mortality in those cities of the United States having over 100,000 population. The cities included in the summary number sixty, and are the same as those reported last year.[2]

Group 1, which contains the nine largest cities in the country, comprises a population of 13,743,746, or about 14 per cent of the total population of the country. All but three of these cities established a new low record for typhoid fever in 1916. The three cities with somewhat higher rates in 1916 than in 1915, Philadelphia, St. Louis and Detroit, showed improvement, nevertheless, over the average from 1911 to 1915.

Boston achieves the best position and, indeed, reaches a remarkably good figure (3.5), the lowest point yet touched by any member of Group 1. Boston, however, is closely pressed by New York for first place. The health officials in these two cities are to be congratulated on the success of the unremitting campaign they have waged in the past ten years against typhoid fever. The painstaking efforts in New York to discover carriers and place them under control have evidently borne good fruit The New York Department of Health comments in one of its recent weekly bulletins on the absence of public interest in the success which has attended the efforts of the department in the reduction of typhoid fever. Little notice has been taken of the fact that within ten years the typhoid rate has been reduced to less than one-third its former dimension This difference in rates represents a saving of over 600 lives, and is certainly an achievement on which any administrative health authority might pride itself The record deserves the widest possible publicity. Boston and New York have set a high standard for the rest of the country.

TABLE 1—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1916	1915	Average 1911 1915	Average 1906 1910
Boston	3.5	5.5	8.0	16.0
New York	3.8	6.0	8.0	13.5
Chicago	5.2	5.4	8.2	15.8
Cleveland	5.3	7.8	10.0	15.7
Philadelphia	7.8	6.6	11.2	41.7
Pittsburgh	8.6	10.3*	15.9*	65.0
St Louis	9.4	7.0	12.1	14.7
Detroit	15.0	12.8	18.1	21.1
Baltimore	18.0	21.9	23.7	35.1

* An error in the figures reported to us last year has been corrected in this tabulation

Chicago reports a rate (5.2) substantially the same as that of 1915 (5.4). This is slightly higher than if a localized water-borne outbreak had not occurred in January, 1916. According to the estimate of the health department, 105 cases and eight deaths should be attributed to the accidental contamination of the water at that period. The outbreak was due to the entrance of sewage into the pumping well of the Sixty-Eighth Street pumping station following the flooding of the sewers by a heavy rain and thaw, January 20 and 21. Without entering into the merits of the controversy between the Chicago Health Department and the Sanitary District of Chicago regarding responsibility for this unfortunate occurrence, it may be observed that a pumping station so constructed as to make it possible for sewage to back up and flow into the suction well is not above criticism. The total rate in Chicago, however, is little affected by the inclusion of the deaths attributed to this source. As has been the case in the past few years, the 1916 rate is exceedingly low.

With respect to the typhoid situation in Chicago, students of vital statistics will be interested in referring to the *Bulletin* of the Chicago Department of Health for Oct. 21, 1916, in which a special plea is made for "utmost care in the filling out of certificates and in assigning both the immediate and remote causes of death," typhoid deaths being especially emphasized in the accompanying statement. The probable motive and effect of such an appeal are matters for conjecture. It is interesting to note that in 1915, forty-three typhoid deaths were recorded in Chicago in the last quarter of the year, while in 1916 only eighteen deaths were officially assigned to this cause.

Cleveland, in spite of a rather marked increase of typhoid in August, records a very low annual rate. Full operation of the filtration plant, construction of which has been somewhat delayed, should improve the water conditions in Cleveland. Meanwhile a careful watch is being kept over the supply and chlorination sedulously practiced.

Pittsburgh seems to have joined permanently the list of cities with a very low rate. To those who have been familiar with the high typhoid rates which prevailed in this city for many years, it is as surprising as it is gratifying to note that the rate in 1916 was hardly more than one-eighth the average for 1906-1910. Philadelphia is running a neck and neck race with Pittsburgh for low place, just as for several decades it vied with the latter city for the unenviable distinction of the highest typhoid rate among the large cities.

Baltimore makes a new low record, and is evidently profiting from the installation of a filtered water supply in September, 1915, and from the efforts which are being made to correct the milk situation.

Detroit alone among the cities of this group shows relatively little improvement. It may even find itself at the bottom of the list as time goes on. There is evidence, however, that the responsible authorities of Detroit are awake to the situation, and that this city will not long be allowed to suffer from a typhoid rate three to four times as high as that in Boston, New York and Chicago. The way in which Baltimore has closed up the gap between itself and Detroit should prove an incentive.

The tabulation of the cities of Group 2 (from 300,000 to 500,000 population) shows more with increased than decreased typhoid rates. Buffalo and Washington stand not far from last year's figures, which in both cases were relatively low. In neither city is the 1916 rate as high as the 1914 rate or as the average for the preceding five-year period. New Orleans, on the other hand, exceeds its relatively high rate for 1915, which was itself slightly in excess of the preceding five-year average. Newark shows a considerable increase over the 1915 figure, but its rank is still excellent.

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[1] The preceding articles were published May 31, 1913, p 1702, May 9, 1914, p 1473, April 17, 1915, p 1322, and April 22, 1916, p 1305

[2] The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S Census Bureau It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at *present* statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an under statement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p 13).

Los Angeles reports an exceedingly low typhoid mortality for 1916, almost making it the banner city of the group. Seattle, however, retains its primacy by a small margin. As pointed out last year, a part at least of the improvement in the Los Angeles rate may be attributed to the betterment in the water supply. Cincinnati and San Francisco also report marked reductions, and Minneapolis a very satisfactory one.

The most unfortunate city in this group during the past year has been Milwaukee, which has increased its rate from 4.5 to 14.9, and drops from third to ninth place. This great change for the worse was undoubtedly due to a general infection early in the year carried through the city water supply. The chlorination of the supply throughout 1915 was apparently highly effective, as noted in our last report, and no official explanation has been given for the apparent failure of the chlorination treatment in the month of January, 1916. Some suspicion was aroused locally by statements that sodium thiosulphate (hyposulphite) had been used, January 19, to neutralize the taste of the chlorin in the water; it seems conceivable that some mistake was made in this application, and that this led to the inhibition of chlorin action before all the intestinal germs in the water had been destroyed. It is stated that the use of the sodium thiosulphate was followed by a sudden bacterial increase in the tap water. This explanation of the origin of the water-borne infection, however, does not seem to have received official acceptance. Similar instances have been reported in The Journal from time to time in which any interruption or interference with the process of chlorination of a bad water has given rise to severe typhoid outbreaks. Whatever the immediate cause, the water-borne epidemic in February was a serious one, resulting in upward of 300 cases and many deaths. The Milwaukee authorities are at a grave disadvantage in having to deal with a highly polluted water. Special vigilance is evidently demanded in water control in that city.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1916	1915	Average 1911-1915	Average 1906-1910
Seattle	3.0	2.5	5.7	25.2
Los Angeles	3.1	5.5	10.7	19.0
Cincinnati	3.4	7.8	7.8	30.1
San Francisco	3.4	9.4	13.6	27.3
Newark, N. J.	5.3	2.5	6.8	14.6
Minneapolis	5.8	7.1	10.6	32.1
Buffalo	10.9	9.9	15.4	22.8
Washington, D. C.	12.6	11.7	17.2	36.7
Milwaukee, Wis.	14.9	4.5	13.6	27.0
New Orleans	23.4	21.5	20.9	35.6

Group 3 (cities with from 200,000 to 300,000 population) continues for the most part its excellent record of 1915. The rates reached in 1916 are on the whole not far from those of the preceding year with the exception of St. Paul, Providence and Louisville, which report a marked improvement. Portland, Ore., still holds its place at the top of the list, and records a rate under 5. St. Paul also places itself for the first time on the honor list. Kansas City and Jersey City report typhoid increases. Rochester, Denver and Columbus record rates closely approximating the 1915 figures.

Indianapolis alone in this group has experienced a particularly bad typhoid year. Following the excessive amount of typhoid fever in December, 1915, there appears to have been a continuation of the excess in January, 1916. In August, 1916, another typhoid outbreak of considerable dimensions occurred, numbering, it is said, about 700 cases and over thirty deaths. There is no doubt that the situation in Indianapolis deserves more careful study than it has yet received. In spite of the excellent reputation which the Indianapolis water supply has had in the past, the appearance of several explosive epidemics of typhoid, and especially the outburst of epidemic diarrhea, call loudly for an explanation. Evidently something unusual occurred in the summer of 1916, as in the fall of 1915. What this was and how to prevent its recurrence is a subject of pressing concern for the citizens of Indianapolis. A searching investigation of the whole typhoid situation in that city seems to be called for.

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population *1916*	1915	Average 1911-1915	Average 1906-1910
Portland, Ore.	4.6	5.2	10.8	23.2
St. Paul	4.9	7.4	9.2	18.3
Providence, R. I.	5.1	8.4	10.2	14.3
Rochester, N. Y.	5.1	6.0	9.6	12.8
Jersey City, N. J.	6.8	5.6	7.2	12.6
Denver	7.2	6.6	12.0	37.5
Louisville, Ky.	9.7	12.0	19.7	52.7
Kansas City, Mo.	10.6	7.2	16.2	35.6
Columbus, Ohio	13.4	13.3	15.8	40.0
Indianapolis	26.6	12.3	20.5	30.4

In contrast to Indianapolis, Louisville has made a remarkably good record, dropping for the first time to a rate under 10, which is not only much the lowest point so far reached in Louisville, but the lowest yet reported from any southern city.

Some of the cities of Group 4 (from 125,000 to 200,000 population) have experienced rather unusual fluctuations in their typhoid rates. Birmingham, Richmond and Memphis are the worst sufferers. The high rate in the former city appears to be due in large part to a severe typhoid outbreak in June and July. This was thoroughly investigated by Dr. Lumsden of the United States Public Health Service and definitely attributed to ice cream made at one of the larger ice cream factories in Birmingham. It is thought that the infection of the ice cream originated in the use of infected milk or cream from some dairy or dairy farm outside Birmingham. While the ice cream supply was considered the predominating factor in producing the excessive number of typhoid cases in the early summer, the investigators believe that local factors other than ice cream were also operative. As a result of the outbreak and the consequent searching sanitary survey, it was recommended that all polluted wells and springs within the city be closed and that official supervision

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1916	1915	Average 1911-1915	Average 1906-1910
Paterson, N. J.	1.4	5.1	9.1	19.3
Spokane, Wash.	2.0	10.7	17.1	50.3
Worcester, Mass.	3.7	5.6	5.0	11.8
Oakland, Calif.	4.0	6.7	8.7	21.5
Omaha	5.1	3.7	14.9	40.7
Scranton, Pa.	5.4	10.4	9.3	31.5
New Haven, Conn.	8.0	18.3	18.2	30.8
Fall River, Mass.	10.9	11.8	13.4	13.5
Syracuse, N. Y.	12.2	5.9	12.3	15.6
Atlanta, Ga.	17.9	11.1	31.4	58.4
Toledo, Ohio	22.9	23.9	31.4	37.5
Richmond, Va.	24.1	12.7	15.7	34.0
Memphis, Tenn.	36.3	24.6	42.5	35.3
Birmingham, Ala.	42.6	33.7	....	....

of the public water supply be rendered more rigorous. Control of the milk supply was also especially recommended, and provisions for the proper disposal of excretal refuse were deemed essential. It is of excellent augury for the success of the campaign against typhoid in Birmingham that immediately following the large number of cases in June and July (558), the August cases should have dropped to eighty-one, a figure lower than for the same month in 1914 and in 1915. Birmingham seems to have been aroused by this epidemic to an understanding of its deplorable sanitary condition, and great improvement may be looked for in the immediate future.

The city of Memphis suffered from a serious explosive typhoid outbreak at almost the same time as Birmingham. Two hundred and fifty cases were reported in July, the number of new cases falling off to ninety-two in August. An infected dairy was considered the source of the outbreak. It is estimated that under the stress of the epidemic over 30,000 persons were vaccinated. Other southern cities unquestionably tolerate the same conditions which were primarily responsible for the Birmingham and Memphis outbreaks and should take warning from the disasters in those cities last summer. The causes of the excessive typhoid in our southern cities are now pretty well understood, and while the difficulties in the way of improvement are notably greater than in northern cities, they are by no means insuperable. We may look to Birmingham, Memphis, Atlanta and Nashville for a rapid and definite advance in their sanitary conditions.

Paterson holds the best place in Group 4, and records a rate with one exception (Cambridge, Mass.) the lowest in the country. Spokane, Worcester and Oakland also make an excellent showing. The cities of Scranton and New Haven report a marked reduction. The New Haven situation, long in need of betterment, seems to promise definite improvement.

Richmond, like Birmingham, had a serious summer epidemic, its rate for the year being almost doubled. Some uncertainty appears to surround the cause of the July-August epidemic. The public water supply seems to have been suspected at the time, but official inculpation of the water does not seem to have been made. One statement appears to place responsibility on the method of water chlorination, and attributes the outbreak to the irregular operation of the chlorination plant. If this is true, the Richmond outbreak, like the one in Milwaukee, calls attention again to the danger of depending on chlorin treatment without at the same time obtaining assurance as to the proper working of the apparatus. The temptation to regard as permanently safe a method which has been in successful operation for some time is great; but, as shown in the last few years, reliance on water chlorination under all circumstances may not be justified. Whatever the cause, the excellent typhoid record of Richmond in the past few years has been seriously injured.

No light has been shed on the Toledo problem in 1916. It is still a mystery why this prosperous northern city should suffer year after year so seriously from typhoid fever. There is no reason why investigation of the Toledo situation should not be immediate and thorough. Its position among American cities is not enviable.

The cities of Group 5 (from 100,000 to 125,000 population) make a particularly good showing, eleven of the number showing a decrease as compared with the rates for 1915. Cambridge heads the list with the lowest typhoid rate ever reported by a large city in this country and with a remarkable record for three consecutive years. We know of no other city of its size anywhere in the world which has so low a death rate from typhoid. Tacoma, New Bedford and Springfield also report very low rates, and Trenton maintains the good position it reached last year. Hartford and Albany join the ranks of the cities with a death rate less than 10, and exhibit a marked improvement over the average rates for the past ten years. Bridgeport has a somewhat increased typhoid mortality, but in view of the great increase in population in that city due to the influx of workers to munition factories, the problems of health control have become more difficult. Under the circumstances the typhoid rate for 1916 in Bridgeport must be regarded as creditable.

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average	Average
	1916	*1915*	*1911-1915*	*1906-1910*
Cambridge, Mass.	0.9	1.8	4.0	9.8
Tacoma, Wash.	3.5	5.5	10.4	....
New Bedford, Mass.	4.2	18.2	15.0	16.1
Springfield, Mass.	4.7	10.6	17.6	....
Trenton, N. J.	6.3	6.4	22.3	....
Hartford, Conn.	6.3	18.3	15.9	19.0
Albany, N. Y.	7.7	12.6	18.6	17.4
Bridgeport, Conn.	9.0	5.1	5.0	10.3
Salt Lake City	10.2	7.0	13.2	....
Camden, N. J.	11.3	6.7	4.5	....
Lowell, Mass.	11.4	16.0	10.2	13.9
Dayton, Ohio	14.7	13.6	14.8	22.5
Grand Rapids, Mich.	15.6	24.6	25.5	29.7
San Antonio, Texas	16.9	19.2	29.5	....
Reading, Pa.	18.7	16.2	31.9	42.0
Nashville, Tenn.	27.3	35.1	40.2	61.2
Dallas, Texas	27.5	20.3	....	....

Salt Lake City and Camden show considerable increases over the preceding year, and Dayton a slight increase. The Lowell rate, on the other hand, is somewhat less, but is still above the average for the preceding five years. Grand Rapids reports some typhoid

TABLE 6.—DEATH RATES FROM TYPHOID IN 1916

First Rank (Under 5.0)	
Cambridge, Mass.	0.9
Paterson, N. J.	1.4
Spokane, Wash.	2.0
Seattle	3.0
Los Angeles	3.1
Cincinnati	3.4
San Francisco	3.4
Boston	3.5
Tacoma, Wash.	3.5
Worcester, Mass.	3.7
New York	3.8
Oakland, Calif.	4.0
New Bedford, Mass.	4.2
Portland, Ore.	4.6
Springfield, Mass.	4.7
St. Paul	4.9

Second Rank (5.0-10.0)	
Omaha	5.1
Providence, R. I.	5.1
Rochester, N. Y.	5.1
Chicago	5.2
Newark, N. J.	5.3
Cleveland	5.3
Scranton, Pa.	5.4
Minneapolis	5.8
Trenton, N. J.	6.3
Hartford, Conn.	6.3
Jersey City, N. J.	6.8
Denver	7.2
Albany, N. Y.	7.7
Philadelphia	7.8
New Haven, Conn.	8.0
Pittsburgh	8.6
Bridgeport, Conn.	9.0
St. Louis	9.4
Louisville, Ky.	9.7

Third Rank (10.0-20.0)	
Salt Lake City	10.2
Kansas City, Mo.	10.6
Buffalo	10.9
Fall River, Mass.	10.9
Camden, N. J.	11.3
Lowell, Mass.	11.4
Syracuse, N. Y.	12.2
Washington, D. C.	12.6
Columbus, Ohio	13.4
Dayton, Ohio	14.7
Milwaukee, Wis.	14.9
Detroit	15.0
Grand Rapids, Mich.	15.6
San Antonio, Texas	16.9
Atlanta, Ga.	17.9
Baltimore	18.0
Reading, Pa.	18.7

Fourth Rank (Over 20.0)	
Toledo, Ohio	22.9
New Orleans	23.4
Richmond, Va.	24.1
Indianapolis	26.6
Nashville, Tenn.	27.3
Dallas, Texas	27.5
Memphis, Tenn.	36.3
Birmingham, Ala.	42.6

diminution, but it is evident that the typhoid conditions in that city are not as satisfactory as in many other places.

Nashville, during the past year, has carried on a vigorous campaign against typhoid. It is said that over 20,000 persons have been vaccinated under the auspices of the health department, and many more by private physicians. There has also been a sustained endeavor to extend sewerage facilities in Nashville and to eliminate the dry closets. While much remains to be done, there is no doubt that the situation in this city is steadily improving under the energetic efforts of the physicians and health officials. Nashville reached a new low rate in 1916, and no longer has the highest typhoid rate in the country. Compared with the average rate for 1906-1910, its improvement has been remarkable.

TABLE 7.—AVERAGE DEATHS FROM TYPHOID PER HUNDRED THOUSAND IN EACH GROUP DURING 1916

Group	Number of Cities	Total Population	Number of Deaths	Average Deaths per 100,000
1, *over 500,000*	9	*13,743,746*	854	6.2
2, 300,000-500,000 ..	10	4,053,281	344	8.5
3, 200,000-300,000 ..	10	2,635,983	248	*9.4*
4, *125,000-200,000* ..	*14*	2,250,991	330	14.7
5, 100,000-125,000 ..	*17*	1,983,918	235	11.8
Total	60	24,667,919	2,011	8.1

Dallas shows an apparent increase for 1916 as compared with the preceding year. The typhoid history in this city for the previous decade is unavailable. Dallas now has a well trained director of public health, and betterment of the typhoid situation may soon be looked for.

TABLE 8.—TOTAL AVERAGE TYPHOID DEATH RATE (*1910-1916*)

	Total Population (57 Cities)* Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,996,035	4,114	19.59
1911	*21,545,014*	*3,391*	15.74
1912	22,093,993	*2,775*	12.56
1913	22,642,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915	23,740,930	2,068	8.71
1916	*24,205,359*	1,842	7.61

* *Three cities are omitted from this summary because data for the full period are not available.*

In 1916, thirty-three cities had a lower typhoid rate than in 1915 and twenty-six a higher; thirty-five cities had a typhoid rate under 10, as compared with 32 in 1915. Sixteen cities had a death rate under 5 in 1916, while only five cities were under that limit in 1915, four in 1914 and one in 1913. In 1916 four cities reached the very low rate of 3.0 or less.

A Famous Roman.—*Scribonius Largus, a Roman physician who lived during the reigns of Tiberius and Claudius (14-54 A. D.), owes his celebrity to the fact that he wrote and published (in 47 A. D.) a book containing a collection of the best medical formulae and popular recipes known at that time. He appears to have had a large private practice and to have spent a considerable portion of his professional life in the service of the army. He accompanied the Emperor Claudius, for example, in his campaign against Britain (43 A. D.), and the book which he wrote, and which has just been mentioned, was dedicated by him to that emperor. According to Neuburger, Scribonius is to be credited with having been the first to describe correctly the proper manner of obtaining the drug known as opium, and also the first to recommend, in the treatment of severe headaches, the employment of electric shocks as communicated by the fish called the "electric ray."*—Albert H. Buck, The Growth of Medicine.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 781*)

Chronic Nephritis

Some of the causes of this disease are:

Unresolved acute nephritis.
Repeated attacks of acute nephritis.
Repeated irritations of the kidneys, such as result from repeated anesthesias, athletic strain, and frequent severe chilling of the body.
Overindulgence in meat and canned foods, repeated ptomain poisoning, and prolonged use of foods preserved with sodium benzoate or boric acid.
Intestinal indigestion.
Overindulgence in alcohol, especially beer. (Although alcohol has not been proved to be a direct cause of nephritis, it acts as a predisposing cause by disturbing the gastro-intestinal digestion and the liver.)
Prolonged hypertension.
Cardiac insufficiency.
Pregnancy.
Abdominal tumors.
Loose kidney.
Syphilis.
Kidney infection, especially of the pelvis of the kidney.
Gout.
Arteriosclerosis.
Chronic lead poisoning.
Long continued use of mercury, arsenic, some synthetic drugs, and some coal-tar drugs.
Repeated exposure to severe cold.

SIGNS OF INCIPIENT CHRONIC NEPHRITIS

Besides the more scientific tests of kidney function, many clinical signs and symptoms indicate the beginning of or the later stages of chronic nephritis. Acute nephritis invariably, and chronic diffuse nephritis generally, present so many urinary evidences that the diagnosis is unmistakable. The so-called chronic interstitial and arteriosclerotic nephritis begins and develops so insidiously, at times without urinary signs, that associated symptoms and conditions are of importance in making a diagnosis. Predisposing causes are: chronic congestion of the kidneys due to insufficiency of the circulation or to some abdominal cause; continued intestinal indigestions, as evidenced by indican in the urine; hypertension with all of its associated symptoms, as attacks of polyuria, arising at night once or more to urinate, cardiac hypertrophy, attacks of palpitation, slight dyspneic attacks, momentary dizziness, and eye disturbances; gouty symptoms; a history of overfeeding, especially of proteins; an alcoholic history; excessive smoking; severe athletic work or other physical tension in earlier life; previous attacks of nephritis; repeated pregnancies, especially if kidney congestion has occurred during this condition; and history of serious infection or disturbance of the urinary tract. A previous history of any of these conditions demands that the urine be examined at regular intervals for albumin and casts, and that the twenty-four hour urine excretion be determined. As chronic nephritis often develops slowly, proper advice and care will, in many instances, long postpone insufficiency of the kidneys.

The importance of the diminution of the chlorid excretion is understood, as is also the importance of preventing intestinal indigestion and of prescribing food which does not cause indican or an increase of sulphate to appear in the urine. If there is an increase of ammonia in the urine it may indicate liver disturbance.

The diet being arranged for the individual, repeated chilling of the body prevented, severe exercise proscribed, alcohol prohibited, tobacco prohibited or allowed in moderate quantities, the skin kept moist and healthy and able to function normally, and constipation prevented, incipient nephritis may for a long time remain in this stage.

On the other hand, as repeatedly stated, traces of albumin and hyalin and granular casts do not necessarily denote that chronic nephritis is developing. They denote some congestion of the kidneys, however, the cause of which should be sought, as these repeated congestions or irritations lead to future chronic inflammation. Even when an albuminuria, with or without casts, persists for some time in a condition not severe enough to be termed a nephritis, the congestion may entirely disappear, the injured epithelium entirely recover and the kidneys become normal, remaining so perhaps for years or for the rest of the patient's life. It seems probable that slight congestion of the glomerular epithelium may permit an albumin leak, while considerable degeneration of the epithelium of the tubes may occur without accompanying albuminuria.

Some portion of the kidney may be the source of considerable albumin and numerous casts and yet may entirely recover without interfering with the total kidney excretion or without showing symptoms of a real nephritis. The extent of the infection and the probable prognosis can be ascertained by tests of function, several twenty-four hour urine examinations, the condition of the circulation, the blood pressure and other associated symptoms, especially head symptoms, and also by an examination of the blood for nonprotein nitrogen retention.

PROGNOSIS IN CHRONIC NEPHRITIS

The height of the blood pressure is not a definite guide as to the severity of nephritis, but is an important indication, as a low blood pressure is rarely found when the kidneys are insufficient; though it may occur when the kidney inflammation is secondary to cardiac insufficiency. Although the contrary has been repeatedly asserted, cases have occurred in which the systolic blood pressure has been over 200 mm. and there has been no kidney insufficiency nor has one developed in months, or perhaps years. Overstimulation of the suprarenals by some hormone or by some disturbed excretion from the kidneys in nephritis may cause high blood pressure. Hypertension may be due to a certain extent to retained water and solid constituents in the blood in nephritis, this overdistention causing increased vascular pressure and perhaps compensatory hypertrophy of the heart. These retained substances in the blood may also irritate the walls of the blood vessels to contraction.

Although repeated examinations of the urine will almost invariably show, sooner or later, albumin or casts, or both, uremia may occur when they are entirely absent. Generally, however, the greater the number of casts and the greater the amount of albumin, the more severe the chronic nephritis. Large amounts of albumin may occur in orthostatic or lordotic albuminuria without a real nephritis.

A more positive indication of the condition of the kidneys than the amount of albumin and casts is the amount of nonprotein nitrogen in the blood. One hundred c.c. of blood should normally not contain much more than 30 mg. of nonprotein nitrogen. In uremia there is always retained nonprotein nitrogen, and in sudden coma in patients not previously observed when the urine apparently is negative, or when there is some suppression, examination of the blood for retained nitrogen will determine whether nephritis is a cause, or an associated cause, of the coma. However, the type of nephritis cannot be diagnosed by the amount of retained nonprotein nitrogen.

As elsewhere stated, the phenolsulphonephthalein output—50 per cent. of which should be normally excreted in two hours — may be normally excreted even in the presence of a moderately advanced nephritis. On the other hand, if the phenolsulphonephthalein is very slowly excreted, the kidneys are markedly impaired, either temporarily or permanently. In congestion caused by circulatory failure this impaired function may gradually be restored as the circulation improves. A diminished sodium chlorid excretion can be ascertained by testing, but may be inferred to accompany edema. If the kidneys are seriously impaired, nitrogen retention, as shown by the examination of the twenty-four hour urine on a known diet, or by the urea feeding test, is of serious import, although the type of nephritis cannot be determined by this test.

Evidences of kidney insufficiency other than the signs described are mental irritability, headaches, dizziness, periods of depression, increased muscle tension, an unexplainable fatigue, and weariness without much exertion, momentary deafness or blindness, or more serious affections of the eyes, and momentary attacks of aphasia. The mental powers may be seriously impaired, the patient finding it difficult to concentrate; memory and judgment may be impaired. These symptoms are characteristic of general arterial or cardiovascular-renal disease. More serious mental depression, approaching melancholia, may signify chronic nephritis.

Acidosis apparently is a frequent cause of dyspnea in nephritis; that it is the only cause is probably not true. Peabody,[93] who studied the relation of acidosis to dyspnea in kidney disease, concludes that a mild acidosis in chronic nephritis is compensated by the increased urinary output of acid. In uremia, acidosis is present, and in terminal uremia it occurs in a marked degree. He did not find that acidosis bore any relation to the nonprotein nitrogen retention or to the phenolsulphonephthalein output. Occasionally acidosis may be present without dyspnea.

Exophthalmos may occur in chronic nephritis, owing perhaps to some toxin acting on the sympathetic nervous system.

Chronic nephritis may be so insidious that the patient may apparently be well for years during the slow development of the disease, until retinitis, cardiac failure, apoplexy or uremia suddenly supervenes. Others, with or without albumin in the urine, may succumb to a sudden fatal attack of angina pectoris. Some patients suffering with chronic nephritis may develop the following symptoms: anemia, loss of weight (unless there is marked edema), low blood pressure, lack of strength, followed by severe headaches, resulting in death from acute uremia; others may have practically no head symptoms, and succumb to dropsy and heart failure.

(To be continued)

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[93] Peabody, F. W.: Studies on Acidosis and Dyspnea in Renal and Cardiac Disease, Arch. Int. Med., August, 1914, p. 236.

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SATURDAY, MARCH 17, 1917

THE LYMPHATICS AND INFECTIONS OF THE URINARY TRACT

The importance of the lymphatic system in relation to various processes of a physiologic as well as a pathologic character has never been fully appreciated. Compared with the innumerable investigations of the blood-vascular channels, the studies of the lymphatics shrink into relative insignificance. Presumably this is due to the greater difficulties which the accurate examination of lymphatic function presents, and perhaps also in part to the more immediate and obvious relations of the blood circulatory system to the activities of living organs and tissues. No one can charge the deficit in our knowledge of the lymphatics to the novelty of the subject, for more than a century has elapsed since the lymph system in its entirety was described by Mascagni.

An instance of the little appreciated significance of the lymphatics is disclosed in the study of ascending infection of the kidney. As a rule, this has been believed to occur either through the lumen of the lower urinary tract and the ureters or by the less probable way of the blood vessels of the ureters. That a migration of micro-organisms upward from these channels and the renal pelvis might occur when the ureter is obstructed so that the urine stagnates cannot be denied. But it is far less probable that a transportation of infectious agencies to the upper urinary tract would take place against any secretory current such as ordinarily is present within the ureter without obstruction.

The existence of lymphatics in close approximation to the urinary structures has long been known.[1] An extensive network of lymphatic vessels and channels exists in the mucosa and submucosa, in the external coats of the bladder and the ureters, and in the entire structure of the kidney. This network in the ureter anastomoses freely with the lymphatics of the bladder at one end, and with the lymph apparatus of the kidney at the other end. At its lower end the system communicates also with the lymphatics of the pelvic structures, in both the male and the female.

These facts at once suggest that infections of the bladder or lower ureter may reach the renal pelvis or the kidney by way of the mural lymphatics as well as by the paths already referred to. An appreciation of the importance of this was clearly recognized by Sweet and Stewart[2] of Philadelphia in their attempts to devise an operation for the successful anastomosis of the ureters with the bowel. Among the recognized difficulties of this procedure of uretero-intestinal implantation that is occasionally rendered desirable by disease of certain regions of the urinary tract are general peritonitis, cicatricial contraction of the opening into the bowel, and ascending infection of the kidneys. The last is of the greatest importance. The Philadelphia surgeons soon suspected that the pathway along which the objectionable infection ascends is in the lymphatic system of the ureter and kidneys, rather than in the blood vessels or the lumen of the ureter. Indeed, they came to the conclusion in 1914, as the result of their experimental studies, that "the anastomosis of the ureters with the bowel would not seem to hold out much promise," for every attempt was blocked by the ease and rapidity with which infection following operative procedure enters the lymphatic system of the ureter.

More recently Eisendrath and Schultz,[3] working in the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital, Chicago, have attempted to ascertain experimentally whether or not the upper urinary tract becomes involved by way of the lymphatics in those cases in which the bladder is the seat of infection. Both clinical and experimental evidence indicated that almost complete obstruction to the free passage of urine is necessary for the ascent of infection by way of the lumen of the urinary tract. Eisendrath and Schultz showed that infection set up by the introduction of bacteria into the bladder without injury or obstruction may pass upward by means of the interstitial lymphatics of the ureter. The degree of involvement depends, as always, on the virulence of the micro-organism and on the susceptibility of the subject. When the kidney tissue is involved in ascending infection brought about experimentally, as described, the path of travel is from the subepithelial tissue of the pelvis to the kidney by way of the intertubular and perivascular lymphatics. From the kidney the perirenal tissues may become involved through the capsular lymphatics which anastomose with those of the cortex.

These observations may explain the genesis of many of the cases of pyelitis and pyelonephritis which complicate a cystitis. Furthermore, the Chicago investigators even believe that the free anastomosis between the lymphatics of the broad ligament and those of the ureter makes it possible for infection to travel directly from the uterus and adnexa to the ureter, and from there to the renal pelvis and kidney. Pyelitis and pyelonephritis, not secondary to cystitis, may therefore also be the result of lymphatic transport of infection from the pelvic organs in the male and female, and from the lower intestinal tract. This, Eisendrath and Schultz tentatively contend, would explain many of the cases of pyelitis of pregnancy and of the puerperium in which there are no traces of cystitis either bacteriologically or in cystoscopic examination. As a practical precaution they emphasize the necessity of a minimum of trauma and a maximum of asepsis in manipulations on the lower urinary tract, especially of the bladder and ureters, since organisms can enter the submucous lymphatics even though the epithelial lining of the bladder and ureter is intact, being carried upward by the lymphatics to the kidney. The new emphasis on the lymphogenous route of infection opens up many speculations that have not received consideration in relation to the urinary tract.

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[1] Sakata (Ueber den Lymphapparat des Harnleiters, Arch. f. Anat., 1903, p. 1) cites the older literature. Kumita: Lymphgefasse der Nieren- und Nebennierenkapsel, ibid., 1909, p. 49; Ueber die Lymphbahnen des Nierenparenchyms, ibid., 1909, p. 94. Bauereisen, A.: Ueber die Lymphgefasse des menschlichen Ureters, Ztschr. f. gynak. Urol., 1911, **2**, 235.

[2] Sweet, J. E., and Stewart, L. F.: The Ascending Infection of the Kidneys, Surg., Gynec. and Obst., 1914, **18**, 460.

[3] Eisendrath, D. N., and Schultz, O. T.: The Path of Involvement in Ascending Infection of the Urinary Tract, Jour. Med. Research, 1917, **35**, 295. Lymphogenous Ascending Infection of the Urinary Tract, The Journal A. M. A., Feb. 17, 1917, p. 540.

CURRENT VIEWS REGARDING THE TONSILS AND THEIR SURGICAL REMOVAL

Nowadays when any organ of the body attains a previously unsuspected importance so that considerable professional attention is concentrated on it, the circumstances is soon reflected in the interest and expectations of the layman. This is seen, for example, in the popular attitude toward the tonsils and adenoids. Few untutored persons have any conception as to the purpose, not to say the location and anatomic relations, of these lymphoid tissues. The physician may counsel the removal of one of the structures with a clear understanding that he is urging what is, in a sense, an experimental operation which may remove a possible cause of disease in other organs. The layman, encouraged by the apparent innocuousness of the operative procedure, soon begins to look on tonsillectomy as a sort of panacea for the most diverse ills; and somehow this state of mind occasionally seems to weigh in the balance with the professional man himself. That the uses of these lymphoid structures are so little understood is no reason for counting every prominent tonsil or adenoid in persons of school age as a defect. Indeed, there seems to be a wholesome reaction against the operations on tonsils in youth merely because they are prominent and noticeable. At the Johns Hopkins Hospital, for example, the practice is to regard the tonsils and adenoids in children as physiologically important parts of the mechanism which protects the lower air passages from dust and organisms.[1] If there are no mouth-breathing, no evidence of damage to the ears, no chronic enlargement of the glands of the neck, no cystic condition of the adenoids known as Thornwald's disease, and none of the so-called "reflex neuroses," the removal of adenoids regardless of their size or appearance is not recommended.

On the other hand, recent years have witnessed a growing interest in management of diseased tonsils and a widespread appreciation that the germ of tonsillitis may hit in many spots far removed from the local seat of obvious disorder. Tonsillar and nasopharyngeal infections have of late frequently become related, for example, to infectious and rheumatoid arthritis, myositis and acute rheumatic fever, to chorea, to hyperplasia of the cervical glands, and even to nephritis. If these relationships and other indications of the involvement of the tonsils as portals of entry for harmful micro-organisms could be convincingly established, the indications for the removal of the tonsils both as a prophylactic and as a therapeutic measure would become clearer and more rational. It is of unusual value, therefore, to have available a carefully digested study of the relation of tonsillar and nasopharyngeal infections to general systemic disorders, based on 1,000 cases in which operation was performed at the Johns Hopkins Hospital during the past five years.[1] An added importance is lent by the fact that these operations were not done in a haphazard way in hurried dispensary service without experienced anesthetists or assistants; they were performed under the rigorous routine of a surgical ward, and the cases were followed up in order to learn the subsequent history with respect to disorders supposed to be secondary to a chronic focus of infection in the upper air passages.

As a result of the experience now collated, Dr. Crowe and his associates have reached certain tentative conclusions which may be helpful in the contemplation of tonsillectomy. They assert that the operation should never be undertaken during the acute stage of tonsillar inflammation, as a cerebral abscess may result. Diabetes is as much a contraindication for tonsillectomy as it may be for any operation necessitating general anesthesia. Tonsillectomy is rarely of benefit in the chronic deforming types of arthritis, in many cases probably doing more harm than good. The Baltimore surgeons are further convinced that nothing is to be gained from a tonsillectomy during the acute stage of chorea, acute rheumatic fever or endocarditis. Their experience shows that even after the nose and throat have been put in normal condition by operative measures these diseases may recur. In any event the tonsils are not the only portals of entry for the etiologic organism, and their removal in an interval free from symptoms can be justified only on the plea of preventing further cardiac lesions which may result from subsequent acute tonsillitis. The frequency of heart and joint defects in chorea may justify such a prophylactic measure.

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[1] Crowe, S. J.; Watkins, S. S., and Rothholz, Alma S.: Relation of Tonsillar and Nasopharyngeal Infections to General Systemic Disorders, Bull. Johns Hopkins Hosp., 1917, 28, 1.

In infectious arthritis in which the periarticular changes predominate, and perhaps also in myalgia, the promise of helpfulness from tonsillectomy is greater. In the early stages of glomerulonephritis it may also be worthy of some consideration. The tonsils are the most common site of the chronic infections which give rise to a hyperplasia of the deep cervical lymph glands near the angle of the jaw. The enlargement of the glands will rarely subside after treatment of carious teeth and alveolar abscesses alone. It seems advisable, therefore, under such conditions to consider the removal of the tonsils in cases of persistent palpable glands at the angle of the jaw, particularly if the patient has some general systemic disorder. The majority of the enlargements are apparently due to a chronic pyogenic infection which will subside after tonsillectomy. The others are due, as a rule, to persistent tubercle bacilli.

Obviously the advisability of a tonsillectomy in any individual case depends on the malady and the general condition of the patient. As the Baltimore investigators express it, tonsillectomy alone will not cure tuberculous cervical adenitis, arthritis or glomerular nephritis. It is necessary in such cases to apply general hygienic measures as well, so as to increase the patient's resistance. If the tonsils are the primary focus of infection, their removal in suitable instances may materially alter the prognosis by preventing a constant reinfection. Skilful surgery is indispensable. A partial occlusion of the crypts, resulting from an incomplete tonsillectomy, as sometimes happens, may actually aggravate the symptoms of infection by producing a mechanically made focus of trouble. Despite the many uncertainties and unsolved problems which still exist, however, Crowe and his collaborators state that their records "tend to support the evidence of Billings and others in regard to the importance of focal infections in many of the general disorders seen by the internist, the pediatrician, and the general surgeon."

THE RELATION OF ATMOSPHERIC HUMIDITY TO HEALTH

The importance of atmospheric conditions in determining the heat regulation of the human body has been emphasized by the researches of the last ten years. Scientifically conducted experiments have shown that a large part, if not all, of the discomfort and ill effects brought about by so-called bad ventilation is due to interference with the normal activity of the heat-regulating mechanism. Atmospheric temperature is an important factor in causing physiologic disturbance, but atmospheric humidity also has a large share.

Perhaps the most readily explainable set of changes is that produced by high humidity combined with high temperature. The presence of an excess of moisture in the air naturally lessens evaporation and so leads to a greater rush of blood to the skin in the endeavor to maintain the normal heat equilibrium of the body. Other effects follow. The mucous membrane of the respiratory tract is affected, causing marked swelling and redness of the nasal mucosa. A decrease in the ability as well as the inclination for physical labor has been shown by the exact experiments of Lee and Scott. The dilation of the cutaneous blood vessels undoubtedly causes anemia of the brain, but a definite connection with the accuracy and amount of mental work has yet to be demonstrated. The influence of high room humidity on the health of laundry workers and others engaged in various industrial occupations has long been a matter of observation, and is now given especial consideration in all attempts to establish modern ventilation standards. High humidity combined with high temperature is measurably detrimental.

Cold air with a high moisture content has a depressing effect on the human organism, but the factors concerned are not well understood. Some writers have maintained the existence of a direct connection between house dampness and tuberculosis. Other diseases, such as rheumatism, are commonly supposed to be fostered by a cold damp climate. Cellar dwelling is proverbially unwholesome. In individual instances vitality seems to be lowered and predisposition to infection increased by exposure to humid cold. There is no doubt that the human mechanism works at a disadvantage when placed in cold, moisture-laden air, even though the precise nature of the derangement is not known.

Cold dry air is generally considered healthful and stimulating. Metabolic processes are active, and if the body is properly protected against excessive heat loss, sensations of well-being are dominant. There is little exact physiologic evidence bearing on this condition. Miller and Noble[1] have shown that respiratory infection of rabbits with *Bacillus bovisepticus* (snuffles) is favored by chilling the animals after they have been accustomed to heat.

Dryness combined with high temperature is commonly deemed injurious. This is the combination found in desert climates and in many artificially heated dwellings in northern climates in winter. The dry, hot atmosphere induces restlessness and "nervous" feelings, as well as drying and irritation of the skin and mucous membranes. Susceptibility to colds is said to be increased in indoor dwellers in a hot, dry atmosphere, although a similar effect does not seem to be associated with the aridity of desert climates. Unfortunately there is little known about the optimum relation of temperature and humidity. Climatic studies are difficult to evaluate in this connection since other factors, sunlight, wind and dust, may obscure or neutralize the influence of relative humidity per se.

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[1] Miller, J. A., and Noble, W. C.: The Effects of Exposure to Cold Upon Experimental Infection of the Respiratory Tract, Jour. Exper. Med., 1916, 24, 223.

It is obvious, too, that proper compensation must be made for the evaporation of water from the body in a hot, dry atmosphere and the water intake suitably regulated. There is some uncertainty as to how far the effect of the much berated "life in steam-heated apartments" is due to dryness and how far to other factors, such as the relative winter inertia and lack of exercise, the high room temperature—apart from dryness—that is maintained, and especially the sudden changes from high to low temperature and the reverse—often amounting to from 50 to 60 degrees—that are incurred in passing back and forth between dwelling, office and the wintry streets. In point of fact, we do not know what constitutes the ideal combination of humidity and temperature for maintaining working efficiency. There is no doubt that the introduction of some moisture—say a relative humidity of from 40 to 50 degrees—into the air of the ordinary offices and living rooms in winter gives the atmosphere a balmy quality and conduces to comfort. Comfort alone, however, is not an absolute criterion. It is the opinion of some that the definitely injurious effects of a dry indoor atmosphere in winter have been exaggerated, and that the maintenance of a lower temperature, greater bodily activity and other measures of personal hygiene are of greater importance than the use of "humidifiers." Until the relations of humidity to health and to working efficiency have been determined more exactly than at present, attempts to increase the amount of moisture in the air of dwelling rooms must be more or less tentative and experimental. It is to be hoped that the physiologists will soon be able to provide us with further information about this important matter.

SUGAR TOLERANCE IN PITUITARY DISORDERS

In their experimental studies on the functions of the pituitary gland, Cushing and his collaborators, among others, have presented data to indicate a relation of the hypophysis to sugar tolerance in the organism. Summarized, these indicate that conditions of overactivity or functional hyperplasia of the posterior lobe (pars nervosa et intermedia) foster glycogenolysis and occasion a lowered sugar tolerance if not an actual glycosuria, whereas in conditions of lowered activity or hypoplasia the carbohydrate tolerance becomes distinctly higher than the normal. It has been maintained that the posterior lobe secretion is chiefly concerned in these deviations from the normal in the tolerance for carbohydrates. The experiments seemed to show that when the assimilation for carbohydrates is greatly increased as the outcome of such dyspituitarism, it can be promptly lowered by the coincident intravenous or subcutaneous injection of posterior lobe extract. This extract, furthermore, has a pronounced effect in lowering the sugar tolerance of the normal animal, in which it may even cause glycosuria when given in sufficient dosage.[1]

Such observations might reasonably be expected to have considerable therapeutic significance on the clinical side. Cushing has maintained that on the basis of existent carbohydrate tolerance it should be possible to determine whether a particular case of obvious hypophysial disease is associated with an overactivity or underactivity of the posterior lobe, and thus whether or not it is advisable to administer glandular extract. His clinical series make it apparent that in the early stages of acromegaly the sugar tolerance is apt to be low but that later in the disease there is an acquired overtolerance, and furthermore, that a high assimilation limit may be expected from the outset when the gland is compressed or obstructed by a superimposed tumor which brings about alterations comparable to those of a primary posterior lobe hypoplasia. Hence it may be assumed that in the early stages of acromegaly glandular therapy is contraindicated, whereas later in the disease its use would seem to be highly advisable.

In the experiments on animals, certain associated symptoms are apt to accompany the increased tolerance for carbohydrates. One of these is a tendency toward the acquirement of a generalized adiposity, which suggests the conversion of the stored sugars into fat. Thus, during the tests to establish the carbohydrate tolerance, whether in experimental or clinical cases of posterior lobe deficiency, there often occurs a notable accretion in body weight.

The underlying facts with respect to sugar tolerance in most of these cases, both experimental and clinical, were obtained by the oral administration of sugar for the tests. This procedure has been criticized in the past on the broad principle, pointed out by Blumenthal,[2] that the utilization of sugar by the tissues is expressible only in terms which apply to velocities, for example, as unit weight of sugar, per unit weight of tissue, per unit weight of time. The rate at which sugar is brought to the tissues must therefore be controlled if it is desired to measure its rate of utilization. This necessitates precise knowledge of the rate at which it enters the blood; but when a sugar is given by any method entailing absorption as a preliminary to its entrance into the blood, the latter rate is subject to uncontrollable variations. The most nearly exact method of determining sugar tolerance must therefore consist in direct intravenous injection.

The customary clinical practice consists in administering by mouth 100 gm. or more of glucose dissolved in water or lemonade, and to speak of a low tolerance if glycosuria results from this dose. If 200 gm. can be thus ingested without provoking an output of sugar in the urine, the glucose tolerance is said to be high. Woodyatt, Sansum and Wilder[3] of the Sprague Memorial Institute, Chicago, have contended that there can be no doubt of the correctness of the principle stated by Blumenthal or of the insuperable difficulties which lie in the way of accurate management of the power of the tissues to utilize sugar when methods are used in which it is impossible to control the rate of entry of sugar into the blood. If the sugar is given by mouth, the rate of absorption will depend on variable factors entirely beyond control, and when the subcutaneous or intraperitoneal routes are chosen, the same difficulty is encountered. A tolerance limit obtained by such methods is at best only the resultant of absorption and utilization; and yet, since the appearance of Blumenthal's article, writers other than those quoted above have failed to appreciate the soundness of his views, and continue in their adherence to absorption methods.

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[1] Goetsch, E.; Cushing, H., and Jacobson, C.: Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri, Bull. Johns Hopkins Hosp., 1911, **22**, 165.

[2] Blumenthal: Beitr. z. chem. Phys. u. Path., 1905, **6**, 329.

By the use of an ingenious injection device applicable to man,[3] it has become easy to find the rate of injection which just equals the rate of utilization or the tolerance limit. Normal resting adult men and women of average size, weight and nutrition begin to excrete abnormal quantities of glucose in the urine when the injection rate into the vein is above 0.8 gm. and below 0.9 gm. per kilogram of body weight per hour. By means of their injection technic the Chicago investigators have studied the carbohydrate tolerance, in the sense just defined, in cases of hypophysial disease, including acromegaly, gigantism and dyspituitarism, showing the Frölich syndrome. As an outcome, the glucose tolerance of all these cases was found to lie close to the normal limits. Three showed a bare trace of sugar in the urine after the injection of 0.8 gm. per kilogram per hour, and all gave a definite glycosuria after receiving 0.9 gm. per kilogram per hour. These results are in disagreement with those obtained when the oral administration is used, and suggest, as in the case of myxedema, that the increased tolerance of such patients for sugar given by mouth may be due rather to a retarded absorption from the bowel than to any anomaly of the intermediate metabolism, as certain writers have assumed.

The number of cases examined by the newer method is far too small to permit a final adverse critique of the teachings of Cushing and others. It seems important, therefore, that the factor of tolerance, so important for a correct interpretation of the underlying physiologic disturbance and an application of therapeutic measures, should soon be more conclusively settled by renewed investigation in the directions obviously indicated. There is no serious hindrance to the application of the injection technic in human cases.

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[3] Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2067. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311.

A DEBATED FEATURE OF WOUND HEALING

In the technic of cultures of living tissues it has become customary to embed the isolated cells in a medium of blood plasma, as the satisfactory growth of the surviving protoplasmic structures seems to be dependent on some mechanical support, such as is afforded by the fibrin network of a blood clot. Not long ago, Baitsell[1] observed that in such living cultures of tissues there occurs, in many instances, a transformation of the plasma clot in which the living tissue is embedded. This transformation results in a consolidation or fusion of the elements of the fibrin net and a consequent formation from it of a fibrous tissue which is identical in its form and structure and in many of its staining reactions with a regular collagenous connective tissue.

Such a reaction, whereby cells can transform a fibrin clot by direct intercellular action into a permanent fibrous connective tissue, presented an unusual and decidedly novel view of the development of such tissue. It represented the direct transformation of the fibrin clot into a new fibrous tissue without any intracellular action. It suggested that the connective tissue cell is not primarily the active agent, but that some sort of chemical processes outside the cell body, perhaps some reaction like that in blood coagulation, was responsible for the production of connective tissue fibers.

Baitsell[2] has attempted to substantiate his views further by a study of the formation of fibrous tissue in wound healing. Here a fibrin clot is regularly formed as a part of the repair process; and Baitsell has suggested that subsequently the same change goes on as has been described by him in the isolated tissue cultures. He states that the newly formed fibrous tissue which fills the wound space is apparently identical in appearance, structure, function and staining reactions with regularly formed permanent connective tissue. This conclusion is in sharp contrast with the generally prevailing views[3] that the fibrin, in wounds healing by first intention, forms a temporary tissue which holds the wound surfaces in place and stops up the wound, thus preventing infection. Later the fibrin disappears, not by liquefaction, but through an actual consumption by the new tissue cells, which show a positive chemotropism to the fibrin mass and are thus attracted into the fibrin clot in large numbers. The permanent tissues which go to fill the wound space are then formed by these cells through an intracellular action.

Baitsell's interpretation of the change in the fibrin clot as a transformation of fibrin into true fibrous tissue was based on the physical character of the unstained fibers and their reaction to connective tissue stains. Chemical tests were also applied. Lambert,[4] who has reinvestigated the question, has announced his conclusion that the only support for Baitsell's transformation idea consists of results obtained with a modified stain which does not differentiate fibrin and fibrous tissue. Chemical tests and reactions with all three of the differential connective tissue stains in general use show that no such transformation takes place. For the present, therefore, we may remain justified in the belief that the fibrin which early fills wounds forms only a temporary scaffolding which is removed later — not, however, by the postulated direct conversion into permanent collagen fibrils, such as are found in the healed scar. The genesis of these is to be sought in the work of connective tissue cells.

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[1] Baitsell, G. A.: The Origin and Structure of a Fibrous Tissue Which Appears in Living Cultures of Adult Frog Tissues, Jour. Exper. Med., 1915, **21**, 455.

[2] Baitsell, G. A.: The Origin and Structure of a Fibrous Tissue Formed in Wound Healing, Jour. Exper. Med., 1916, **23**, 739.

[3] Marchand, F.: Der Process der Wundheilung, Stuttgart, 1901, pp. 52-55.

Current Comment

PROGRESSIVE LEGISLATION IN ILLINOIS

The passage of Governor Lowden's consolidation bill[5] must be regarded as a most important state legislative achievement. This measure, known popularly as the consolidation bill and legally as the Civil Administrative Code of the State of Illinois, completely reorganizes the state administrative machinery. It abolishes or consolidates about 130 boards, commissions, bureaus and special committees which have been created by legislative enactments during the last fifty years. Like most of our states, Illinois followed no definite program or policy in the development of the administrative branch of her government, and as a result there was a hopeless tangle of boards and commissions, with conflicting and overlapping functions and duties, without any clearly defined responsibility for different functions, and with little, if any, coordination. The bill reorganizing the state executive offices passed the senate unanimously and was adopted by the house with only three dissenting votes, in spite of the fact that it put an end to many offices and sinecures dear to the hearts of politicians. While the entire law is of the greatest importance to the state, physicians are naturally most interested in its public health and medical licensure features. A department of health with a director of public health at the head takes the place of the old board of health. This department not only takes over the powers and duties of the state board of health under previous laws, but also has conferred on it broader functions than the state board possessed. A department on registration and education takes over the examining and licensing of all professions, occupations and trades coming under state control. The principle on which the examining and licensing of physicians is based is essentially that the state regulation of the practice of medicine is an educational and not a sectarian function, and that it therefore is a function of the educational authorities. The responsibility for examining and licensing physicians, as well as all others who desire to treat the sick, by any method, for compensation, as a means of livelihood, is taken off the shoulders of the medical profession and transferred to the people, operating through the educational machinery of the state. This is a most important step in the development of medical legislation, which it is hoped will not only do away with the necessity of specific sectarian legislation, special boards and conflicting standards, but also make unnecessary a large amount of the medicopolitical activity of the past. The provisions for the appointment of educational examiners under the direction of the department of education, for the preparation of questions on practice peculiar to any school, does away with the necessity of special examining boards, and will doubtless lead to recognition of the principle that all persons desiring the same rights and privileges must conform to the same educational standard. Governor Lowden has not only given the state of Illinois an opportunity for developing a modern health machinery; he has also relieved the physicians of the state of the self-imposed and thankless task, each year, of maintaining the standards of medical education. This duty now devolves on the people and on the educational authorities of the state. Governor Lowden and the state of Illinois are to be equally congratulated, the governor on the success of his efforts and the state on the securing of such progressive and constructive legislation.

THE AMMONIA OF THE GASTRIC JUICE

The statement that the gastric juice may contain ammonium salts is by no means of recent origin. It can be found in the classic monograph on the digestive secretions published by Bidder and Schmidt[1] in 1852. Subsequent observers have as a rule admitted the occurrence of ammonia in the secretion of the stomach, though most of them have not found it present invariably or under uniform conditions. The theories as to its origin are manifold; they include suggestions of the production of the ammonia by enzymatic deamination reactions taking place in the gastric mucosa, and likewise of the origin of this nitrogenous compound in the reactions leading to the elaboration of the acid gastric juice. As ammonia is a usual component of the urine, it may be looked on, therefore, as a form of excretory nitrogenous matter; and since it has become unquestioned that the gastro-intestinal tract may serve, like the kidneys, as a channel for the excretion of certain types of compounds, it is not far-fetched to inquire whether or not the ammonia of the gastric juice may accordingly represent an attempt at an excretion of ammonia by way of the alimentary canal. The dependable facts in regard to the subject have been elaborated by the recent studies of Huber[2] at the Hull Physiological Laboratory of the University of Chicago. According to these, ammonia is normally found in small amounts in the gastric juice of man and dog. The amount of ammonia in the pure gastric juice of man varies markedly in different individuals. It is increased by high protein diet, and by the addition of ammonium salts to the food. The fundal mucosa contains the most ammonia, the pyloric mucosa is next in order, while the mucosa of the cardiac end of the stomach contains the least ammonia. The duodenal mucosa contains less ammonia than the fundal mucosa. In certain pathologic conditions (especially gastric ulcer and cancer) the amount of ammonia in the gastric juice is definitely increased, but this increase may not be greater than that found persistently in certain *normal* individuals. These observations seem to indicate that the origin of the ammonia of the gastric juice is a complex one. This may be the case. When the concentration of ammonia in the blood is high it is evidently secreted to some extent through the stomach wall. However, the report of the isolation of a fairly constant bacterial flora from the pure gastric juice of man inevitably suggests the conclusion that enzymatic or bacterial action on the stomach mucosa or on the gastric juice may be responsible for some of the ammonia found in the gastric juice in some cases, even though the constancy of the ammonia content of the fresh juice of normal man and dog speaks against this as the sole or principal origin.

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[4] Lambert, R. A.: On the Question of the Transformation of Fibrin into Fibrous Tissue in Tissue Culture Preparations, Proc. Soc. Exper. Biol. and Med., 1916, **14**, 5.

[5] The Illinois Consolidation Bill Becomes a Law, Social Medicine, Medical Economics and Miscellany, The Journal A. M. A., this issue, p. 869.

[1] Bidder and Schmidt: *Die Verdauungssäfte und der Stoffwechsel*, Mittau and Leipzig, 1852.

[2] Huber, H. L.: Contributions to the Physiology of the Stomach, XL, the Ammonia of the Gastric Juice, Am. Jour. Physiol., 1917, **42**, 404.

GAMBLING ON HUMAN FEAR

"At the Sign of the Dollar" is the title of an instructive and readable article on the psychology of advertising appearing in *Harper's Magazine* for March. It is written by L. F. Deland who, as he says, has devoted twenty years of his life trying to solve advertising problems. Obviously the author knows a good deal about advertising and knows it from the "inside." Of course he believes in advertising; in fact, he admits that he glories in it. In view of this it is interesting to see Mr. Deland's attitude toward the black sheep of the advertising world:

> "The patent-medicine man doesn't merely sell medicine; he gambles on the hopes and fears of mankind. Take this away and leave him only his medicine, and his profits would dwindle into insignificance."

This says in another way what The Journal has said before: There may be an economic, if not a moral, excuse for hypnotizing the public, through skilful advertising, into believing it wants more pianos, more hats, or more automobiles than it can really afford or has any legitimate use for. There is no excuse, either in economics or morality, for advertising which makes well men think they are sick and sick men think they are *very* sick, simply for the purpose of increasing the sales of drugs. This is not merely an economic fallacy, it is inhumanity.

Workman's Compensation Board.—According to Harry A. Mackay, chairman of the Pennsylvania Workman's Compensation Board, nearly four fifths of the men injured in the state industrial establishments during the last year have been cured within a period of two weeks after the accident. During the year ending Jan. 15, 1917, 2,587 men were killed in the course of their employment. Of the 255,722 persons injured, nearly 200,000 men have been so successfully treated by free medication that their injuries have not become compensatable.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Medical Education to Cost More.—To meet the increased cost of supplies and to permit an enlargement of educational facilities, tuition in the medical school of George Washington University has been increased from $150 to $175 a year, and in the dental school from $125 to $150, to take effect next fall.

Forgery to Obtain Narcotics.—A young married woman in Washington pleaded guilty, March 10, to an indictment for forgery in signing the name of a physician to prescriptions for a narcotic drug. The case was referred to the probation officer for investigation. It is alleged that for more than a year she kept her husband in ignorance of her drug addiction.

Revocation of License Sustained.—The Court of Appeals of the District has sustained the board of medical supervisors in its revocation of the license of Dr. Thomas J. Kemp to practice medicine in the District. The revocation was based on Dr. Kemp's conviction, March 24, 1913, of violating the postal laws by sending through the mails a letter concerning a proposed criminal operation.

ILLINOIS

Communicable Diseases.—Typhoid is reported to be epidemic in North Chicago, where twenty cases have been reported.

Dispensary Opened.—St. Mary's Hospital, East St. Louis, has opened a dispensary for the care of diseases of the eye, ear, nose and throat.

New Hospital for Rock Island.—A hospital to cost about $100,000 is to be built by St. Anthony's Hospital, Rock Island, on the grounds adjoining the present infirmary. The new building will accommodate 150 patients, will be of fireproof construction, of brick with stone trimmings, and will be in conformity with the old building.

Health Welfare Meeting.—A meeting of the Illinois Public Health and Welfare Association will be held in Springfield, April 12 and 13. The topics for discussion will include: infantile paralysis; state control of epidemics; registration and vital statistics; sanitary surveys; sanitary and welfare service; rural sanitation and hygiene; popularizing public health through the newspapers; city waste collection and disposal; water works and water purification; tuberculosis control; charities and health; laboratories as an adjunct in the control of communicable diseases; legal aspects of public health administration, and housing problems.

Chicago

Tuberculosis Instruction.—Arrangements have been completed between Northwestern University Medical School and the Chicago Fresh Air Hospital for a four weeks' course on tuberculosis for the senior class in the medical school. Dr. Ethan A. Gray, medical superintendent of the hospital, has been appointed assistant professor in the university.

Changes in Lecture Course.—The Chicago Tuberculosis Institute announces the following lectures for March:

March 22: "How the Visiting Nurse can Aid in the Discovery of Tuberculosis," and "*Home Instruction by the Nurse*," Miss Edna N. Foley.

March 29: "Studies in Tuberculosis Control," Dr. Clarence L. Wheaton. "*Phthisophobia, an Earnest Plea for the Tuberculous Patient*," Dr. John Ritter.

Surgical Operations in the Field.—The "close-up" views of surgical operations and hospital work in the field hospitals in and around Saloniki were given by Surg.-Col. Alexander Primrose, professor of surgery at the University of Toronto, at the eighth annual banquet of the University of Toronto Alumni Association of Chicago, March 2. Dr. Hugh A. Cuthbertson was elected secretary-treasurer of the association.

Personal.—Dr. John H. Long, dean of the school of pharmacy and professor of chemistry of Northwestern University, has been elected president of the Chicago Institute of Medicine.——Dr. Herman Berry celebrated his one hundredth birthday anniversary, March 10.——Dr. J. Gordon Wilson has returned after several months in military hospitals in England and France.——Dr. Frank Billings has been named as head of the advisory committee of the Military Training Camps Association.——Drs. Harry M. Richter and Jacob R. Buchbinder have received Red Cross medals of the third class from the German government in recognition of their services at the Base Hospital, Naumberg.

IOWA

New Hospital Building.—The Atlantic Hospital moved from the old building into its new quarters, March 3, and the patients were transferred, March 5.

Psychopathic Hospital Bill.—A bill has been introduced in the house by Representative Klinker appropriating $150,000 for the establishment of a state psychopathic hospital, at Iowa City.

Typhus in Des Moines.—The Mexican laborer who was found in a bunk car in Des Moines, suffering from typhus fever, died, February 23. The bunk cars have been thoroughly fumigated.

State Medical Library Not Approved.—The Senate Appropriations Committee of the Thirty-Seventh Assembly voted that it report the indefinite postponement of the bill providing for a medical department for the state library.

MISSOURI

Personal.—Dr. John M. Bell, St. Joseph, captain in the Canadian Army Medical Corps, who has been for eighteen months overseas, has returned to St. Joseph on leave of absence.

Hospital Crowded.—On account of the crowded condition of the institution, which now has 1,800 patients, the hospital board of State Hospital Number 2, St. Joseph, has asked the state for a new building.

Health League Organized.—The Health Club of Kansas City, at a meeting held February 19, voted to change the name of the organization to the Health League of Greater Kansas City. A new constitution and by-laws were adopted and new officers were elected.

New Hospital Opened.—The new building of the St. Joseph Hospital, Kansas City, has been opened to receive patients. The formal dedication will occur March 24. The new building cost $750,000, is seven stories in height, of reenforced concrete, brick and terra cotta, and will accommodate 250 patients.

Honor Dr. Hall.—The dinner given in honor of Dr. C. Lester Hall, to commemorate the fiftieth anniversary of his entrance into practice, was given at the Hotel Baltimore, Kansas City, March 10, and was attended by nearly 200. A gold watch was presented to Dr. Hall, and addresses were made by Drs. Charles A. L. Reed, Cincinnati; Van Buren Knott, Sioux City, Iowa; J. Franklin Welch, Salisbury, Mo.; Boswell P. Anderson, Colorado Springs, Colo., and John H. Sevier, Brownsville, Tenn.

St. Louis

Reserve Corps Smoker.—The St. Louis Society of the Medical Reserve Corps, United States Army, gave a smoker at the St Louis Club, February 22, at which addresses were made by Col. Thomas U. Raymond, M. C., U. S. Army, and Major Henry F. Pipes, M. C., U. S. Army.

Personal.—Dr. Samuel B. Scholz, Jr., has been elected medical director of the Missouri State Life Insurance Company.——Dr. G. William Poehl, recently appointed staff physician of the American Red Cross, for service in Vienna, has returned from Washington, his plans having been changed by international complications.

Public Health Association.—The various organizations interested in public health work are organizing the St. Louis Public Health Association, with the primary object of educating the people along the line of prevention of disease. The work was commenced by the St. Louis Tuberculosis Society, which has already mapped out a program and propaganda for the next ten years.

NEW YORK

Hearing on Health Insurance.—The Mills bill providing for compulsory health insurance in this state was the subject of a hearing before the Senate Judiciary Committee, March 7. The prevailing opinion is that the bill will be killed in committee.

Women Physicians to Meet.—The eleventh meeting of the Women's Medical Society of New York State will be held at the Hotel Utica, Utica, April 23. Scientific programs have been arranged for the morning and afternoon sessions, and the annual banquet will be held in the evening.

Health Officers Conference.—Health officers of all third-class cities of western New York will meet at Albany to discuss questions affecting the management of sanitary matters, budgets, communicable diseases, milk inspection and other subjects. The conference will be under the charge of Dr. Fred M. Meader, head of the division of communicable diseases.

New York City

Clinician Selected for New Prison.—Dr. Bernard Glueck, Washington, D. C., psychiatrist, who has been making a study of convicts in Sing Sing Prison, has been selected to conduct a clinic at the New Westchester County Penitentiary, East View.

Thayer in New York.—Dr. William S. Thayer of Johns Hopkins Hospital, Baltimore, delivered an address before the New York Academy of Medicine, March 15, on "The Significance of Some Common Deviations from the Ordinary in Cardiac Function."

Violator of Practice Law Sent to Workhouse.—Louis H. Warner, who has been conducting a "Serological Institute for Medical Research" in this city, is said to have been found guilty in the Court of Special Sessions of practicing medicine without a license. He has been sent to the workhouse for two months.

American Posture League.—A meeting of the American Posture League was held, March 10, at which the constructive work given to the public schools and industrial hygiene developed by the league were presented in a series of illustrated lectures. Miss Jessie H. Bancroft, president and founder of the league, presided.

High Death Rate from Pneumonia.—Since the middle of January there have been 622 more deaths from pneumonia in New York City than during the same period of last year. The number of deaths reported from influenza is relatively low, less than during the corresponding period of last year. The death rate of the city as a whole shows a decline for the first two months of 1917 as compared with that for the corresponding period of 1916, the rates being 16.83 as against 15.87.

Base Hospitals and Physicians Prepared.—Six base hospital units have been organized in New York City. These units are: Bellevue Hospital, Dr. George David Stewart, chief surgeon; Presbyterian Hospital, Dr. George E. Brewer, chief surgeon; Mount Sinai Hospital, Dr. Nathan E. Brill, chief surgeon; Post-Graduate Hospital, Dr. Samuel Lloyd, chief surgeon; German Hospital, Dr. Frederick Kammerer, chief surgeon, and the New York Hospital, Dr. Charles L. Gibson, chief surgeon.——At a meeting of the National Defense Committee, held at the Hotel Vanderbilt, March 9, at which Dr. Frank F. Simpson, Pittsburgh, presided, an auxiliary committee was appointed, with Dr. Charles H. Peck as chairman and Dr. Frederick E. Sondern as secretary.

OHIO

Senior Student Dies.—Henry F. Walters, a senior student at the Ohio State University, Columbus, and who had passed his examinations for internship at the Protestant Hospital, died in that institution, February 23, from Ludvig's angina.

Personal.—Dr. O. van der Stricht, professor of histology and embryology in the University of Ghent, Belgium, has been reappointed research fellow in cytology in the School of Medicine of Western Reserve University, Cleveland.——Dr. John J. R. McCloud, Massillon, professor of physiology in Western Reserve University, has been in Montreal on leave of absence, acting as professor of physiology in McGill University.——Dr. Howard T. Karsner, professor of pathology, has been elected secretary of the School of Medicine of Western Reserve University, Cleveland.——Dr. Russell J. Collins, demonstrator of pharmacology in Western Reserve University, Cleveland, has resigned because of ill health.——Dr. Stanley P. Reimann has been appointed Hanna Research Fellow in Pathology in Western Reserve University, Cleveland.——Dr. Samuel E. Ziegler, Cleveland, was operated on for hernia at the Grand Hospital, Columbus, February 27.——Dr. Thomas O. Whitacre, Bowling Green, while getting out of his automobile, was assaulted by John Gokey, who was arrested and sentenced to thirty days in the Toledo workhouse.——Dr. Arl A. Baber has been reelected superintendent of the Dayton State Hospital.——The office of Dr. Herbert E. Noble, Toledo, was damaged by fire to the extent of $600, February 13.

Cincinnati

Personal.—Dr. Robert D. Maddox, Jr., has been appointed chairman of a board to examine officers for the Medical Officers Reserve Corps, U. S. Army, and has associated with him Drs. Goodrich B. Rhodes and Elmer A. Klein, Norwood. ——Dr. Arthur Pfeiffer sustained severe injuries in a collision between automobiles at Newport, recently.

Hospital Staff Appointments.—At the annual meeting of the board of managers of the Episcopal Hospital for Children the following appointments were made on the medical staff: Dr. George M. Allen, consulting physician; Dr. Frank H. Lamb, senior physician; Dr. James M. Bentley, junior physician; Drs. Clarence J. Broeman and James W. Miller, attending dermatologists; Dr. Robert Stevenson, assistant laryngologist, and Dr. Martin H. Urner, junior ophthalmologist.

OKLAHOMA

Personal.—Dr. Matthew Karasek, Drumright, suffered painful injuries recently by the overturning of his automobile. ——Dr. Harvey E. Rappolee, Caddo, was thrown from his buggy in a runaway recently, fracturing his arm.

New Medical License Bill.—The passage of a new medical license bill by the Oklahoma legislature recently was due in great measure to the efforts of the Oklahoma State Medical Association. The bill provides that all persons offering to cure diseases or holding themselves up to the public as doctors or physicians must pass the examination of the State Board of Medical Examiners. The passage of this bill will, it is believed, eliminate chiropractors from Oklahoma.

Convictions.—It is reported that Dr. William S. Clarke, Oklahoma City, was recently convicted in the United States Court, at Guthrie, February 8, of violation of the Harrison Narcotic Law and was given a jail sentence of sixty days.—— William Carver of the Carver Chiropractic College, who inserted an advertisement in an Oklahoma city paper recently, headed, 'Was the Senate Bought," is said to have been found guilty of contempt, March 3, was fined $500 and sentenced to imprisonment for ten days in the county jail.

OREGON

Legislative Appropriations.—The legislature appropriated $25,000 for the state board of health to carry on its work for the next biennium. This is $5,000 less than the last appropriation.——The Oregon Social Hygiene Society was given an appropriation of $20,000, and $100,000 was appropriated for the University of Oregon, Medical School.

Health Service for University Students.—The health service of the Oregon Agricultural College, Corvallis, which was organized last fall, has completed its first semester of work and has moved into a separate building. During the first semester, 3,239 calls were made by the college physician, 830 physical examinations were made and twenty-nine operations were performed. This service is maintained by the college and is available to any student.

Sterilization Measure Passed.—The house of representatives, by a vote of 37 to 18, passed the bill providing for sterilization of the feebleminded, insane, epileptics, habitual criminals, degenerates and perverts. The house bill provides for a board of eugenics composed of the state board of health and the superintendents of the Oregon and East Oregon State hospitals, the feebleminded institute and the penitentiary. This board will have the power to hold investigations and to order sterilization. The senate bill leaves the question to the board of alienists in the county court, and the patient may take an appeal to the circuit court.

Osteopathic Bill Passed.—House Bill No. 311, which entitles osteopaths to practice minor surgery, administer anesthetics and dispense narcotics, was passed by the house and senate, and received the endorsement of the governor. While the profession of Oregon endeavored to defeat the bill, the governor, in the following telegram to the secretary of the state board of health, apparently endeavors to excuse himself for signing it:

> SALEM, ORE., Feb. 21, 1917.
>
> Replying to your telegram and others received from Portland physicians, I regret to state that house bill, Number 311, has been signed as no protest whatever was made.
>
> JAMES WITHYCOMBE, Governor.

State Board Items.—Drs. Charles T. Bacon, LaGrande, Harry E. Clay, Salem, and Robert J. Marsh, Portland, have been appointed members of the state board of health, succeeding Drs. Willis B. Morse, Salem, Edward A. Pierce, Portland, and Elijah B, Pickel, Medford, who have been members of the board since its inauguration, thirteen years ago. At the reorganization meeting of the board, February 21, Dr. Alvane C. Seely, Roseburg, was elected president; Dr. Marius B. Marcellus, Portland, vice president, and Dr. David N. Roberg was continued as secretary.——Dr. Frank W. Wood, Portland, has succeeded Dr. Luther H. Hamilton, Portland, as a member of the State Board of Medical Examiners.

Personal.—Dr. Walter Anderson has resigned as house surgeon of St. Vincent's Hospital, Portland, and has started for France, where he will take charge of the Red Cross Hospital, established by subscription from Oregon.——Dr. J. Christopher O'Day has resigned the chair of anatomy at the Northern Pacific College and his affiliations with the Medical Department of the University of Oregon. Dr. O'Day and family sailed from Vancouver, B. C., for Honolulu, March 14. A banquet was tendered to Dr. O'Day, March 7, by the City and County Medical Society, at which Dr. Alpha E. Rockey officiated as toastmaster.——Dr. James L. Manion, Portland, has been ordered to report to the United States Naval Hospital, Washington, D. C., for duty.——Dr. Edward P. Geary, former county physician of Multnomah County, was the guest of honor at a banquet, February 20, given by his former associates on the staff of the Multnomah County Hospital. ——Dr. Earl M. Rice, Portland, was surgeon of the British liner *Mantola*, which was sunk by a torpedo, February 10. He and all the passengers were saved.

PENNSYLVANIA

Personal.—Lieuts. Henry B. Davis, Lancaster; J. Stratton Carpenter, Jr., Pottsville, and George R. Winters, Pittsburgh, have resigned from the Medical Corps, N. G. Pa.——The commission of Major George F. Potteiger, M. C., N. G. Pa., Hamburg, expired, February 4.——Lieut. Charles Francis Linn, M. C., Monongahela, has been transferred from the supernumerary list and assigned to duty with the Tenth Infantry.——Dr. Luba Rolin Goldsmith, Pittsburgh, has been elected secretary of the Milk Commission of the Allegheny County Medical Society.

Philadelphia

Visitors at College of Physicians.—At the meeting of the College of Physicians of Philadelphia, March 7, Dr. Rufus I. Cole of the Rockefeller Institute read a paper on "The Serum Treatment of Pneumonia." illustrated by lantern slides, and Dr. Samuel Robinson, Rochester, Minn., delivered an illustrated address on "The Surgical Aspects of Pneumonia and the Intrathoracic Complications of that Disease."

Medical Auxiliary for Defense Work.—The Philadelphia Medical Auxiliary of the Council of National Defense was organized at the Bellevue-Stratford, March 6. The committee is as follows: Dr. John H. Jopson, chairman; Dr. Charles A. E. Codman, secretary, and Drs. Richard H. Harte, Edward Martin, Robert G. LeConte, John M. Baldy, John B. McAlister, Harrisburg; George E. deSchweinitz, Ross V. Patterson, Frank C. Hammond, John H. Gibbon, Elijah H. Siter, Edward Kirk, Cyrus L. Stevens, Athens, William Pepper, Seneca Egbert and Lieut.-Col. Henry F. Page, M. C., U. S. Army. To these will be added an officer of the Medical Department of the National Guard of Pennsylvania.

Personal.—Dr. Harvey M. Righter has been commissioned lieutenant and passed assistant surgeon in the State Naval Militia.——Dr. William M. Sylvis has been commissioned first lieutenant, M. C., N. G. Pa.——The resignations of Lieuts. William W. Van Dolsen and Charles B. Kendall, M. C., have been accepted.——Major Frederick O. Waage, M. C., has been relieved from duty with the First Infantry and assigned to duty at headquarters division.——Dr. Hobart A. Hare, who has been seriously ill, has recovered and resumed his college work and practice.——Dr. Paul J. Pontius has been appointed visiting ophthalmologist to the Philadelphia General Hospital. ——Dr. Charles P. Emerson, Indianapolis, spoke on "Social Service from the Medical Point of View" at the County Medical Society, March 14.——Dr. Simon Wendkos has been appointed medical director of the Lebanon Hospital.——Dr. Frederick P. Henry has resigned as professor of the practice of medicine in the Woman's Medical College of Pennsylvania, Philadelphia, to take effect at the close of the present term.

CANADA

Ontario Board of Health.—The Department of Militia and Defense, Ottawa, has advised the Ontario Board of Health that for the twelve months ending Dec. 31, 1916, only 167 cases of typhoid fever were reported in the Canadian expeditionary force in Canada. Typhoid vaccine amounting to about 600,000 doses for about 450,000 men has been supplied by the Ontario Board of Health.

Hospital Notes.—The hospitals of the Province of Ontario have asked the Ontario government that the grant of 20 cents a day be raised to 40 cents, and that hospitals be allowed to collect from municipalities $1.50 a day for indigent patients instead of $1, as at present.——The chancellor of Queen's University, Kingston, Ont., Dr. John Douglas, New York, has agreed to give $100,000 toward a fund to develop Kingston General Hospital into a capacious modern institution, with a view to improving its teaching facilities in connection with the medical department of Queen's University.

Personal.—Word comes from London, England, that Col. Lorne Drum, Ottawa, has been appointed assistant medical director of the fifth division; Major C. Charles A. Young, deputy director; Col. James W. Bridges, assistant medical director at Bramshott, and Capt. Alexander E. Garrow, acting staff captain, fifteenth brigade.——Col. Herbert A. Bruce, Toronto, has returned to France as an official of the Imperial War Office.——Col. Adam T. Shillington, Ottawa, has become commandant at the Kitchener War Hospital, Brighton, England.——Dr. Newton Albert Powell, Toronto, has been elected president of the Aesculapian Club; Dr. Harry B. Anderson, vice president; Dr. George A. Elliott, secretary; Dr. Edmund E. King, treasurer, and Drs. Frederick A. Cleland, Richard A. Reeve, George A. Bingham and Lieut.-Col. Irving H. Cameron, all of Toronto, executive committee. The latter will soon return to England for hospital duty.

Military Affairs.—Medical officers of the Canadian overseas forces in the future will be appointed with lieutenant's rank, and will draw the pay allowance and pension of a captain. Candidates having graduated one year or over will be appointed to the rank of captain. Lieutenants will be promoted after one year's service.——Every man of the forty members who have enlisted for overseas service of the University of Toronto Masonic Lodge, which has existed only since 1910, is an officer. The list includes three colonels, three lieutenant-colonels, six majors, fourteen captains and fourteen lieutenants. Among the number are several prominent practitioners of medicine in Toronto.——The militia authorities of Ottawa are in communication with the Canadian High Commissioner, Sir George Perley, in regard to securing a competent medical officer to become director of invalids from overseas. The names of Col. John T. Fotheringham, C. M. G., Toronto; Col. Murray Maclaren, C. M. G., St. John, N. B., and a Colonel Ford are mentioned for this position.——The Toronto School Medical Inspection bill before the Ontario legislature has been given its second reading, and will now be sent to the municipal committee for consideration. The bill provides for the transfer of medical inspection from the board of education to the city department of public health.

GENERAL

Personal.—Dr. and Mrs. Philip Ford Prioleau, U. S. Navy, sailed for the Asiatic station from San Francisco on the transport *Sheridan,* March 5.

Grayson Again Nominated as Medical Director.—The president has again sent to the Senate the nomination of Dr. Cary T. Grayson as medical director in the navy. Dr. Grayson's first nomination, to the Congress that has just adjourned, failed because a number of senators believed that his proposed promotion over so many seniors in rank was not in the interest of the naval service.

Dinner to Major Gilchrist.—Major Harry L. Gilchrist, M. C., U. S. Army, chief surgeon of the Eleventh Division, was given a farewell banquet by the officers of the division at the Hotel Sheldon, El Paso, March 5. Major Harry H. Snively, Columbus, commanding Ohio Field Hospital, No. 2, was toastmaster. A pair of field glasses was presented to Major Gilchrist on behalf of the officers by Lieut.-Col. Alexander N. Stark, M. C., U. S. Army.

More Medical Aid Needed.—Dr. Richard H. Harte, president of the Pennsylvania Chapter of the American Red Cross, spoke before the Pennsylvania Women's Division for National Preparedness of the Red Cross on "The Woful Unpreparedness of the Country." He states that England has already 30,000 beds in Boulogne and more than 200,000 beds in England, and that this country at present has twenty base hospitals of 500 beds each, or 10,000 beds.

American Life Convention Meeting.—The Medical Section of the American Life Convention held its annual meeting at Excelsior Springs, Mo., March 7 to 9, under the chairmanship of Dr. Frank P. Foxworthy, Indianapolis. The following officers were elected: chairman, Dr. Joseph P. Turner, Greensboro, N. C.; vice chairman, Dr. Green V. Wollen, Indianapolis; secretary, Dr. Frank L. B. Jenney, Chicago (reelected), and member of the board of managers, Dr. John H. Florence, Houston, Texas. Richmond, Va., was selected as the next place of meeting.

FOREIGN

The Fight Against Tuberculosis in France.—France is organizing to combat the spread of tuberculosis after the war among men weakened by hardships of the campaign. About 100,000 men in the army have already been attacked by tuberculosis, and of these about 80,000 have already been sent to their homes. A great chain of national sanatoriums is proposed to handle this problem. In 1915 a yearly credit was opened by the government which assures tuberculous soldiers of a certain amount of assistance during the war. There is also an arrangement which allows tuberculous soldiers three months in a civil sanatorium at the expense of the state.

Epidemic Diseases.—An outbreak of smallpox is reported in Berlin and its immediate vicinity, and compulsory vaccination has been ordered. Eighty cases of smallpox have already been reported, 90 per cent. of which are among persons over 45 years of age. The disease is believed to have been transmitted from Volhynia.——Smallpox is said to be raging in Canton, China, where forty-eight vaccination stations have been established, and compulsory vaccination is being enforced.——An epidemic of typhoid fever is said to be prevalent in Jerusalem, where only two physicians, one a woman, now remain to care for the 80,000 inhabitants of the city.

PARIS LETTER

Paris, Feb. 15, 1917.

The War

THE CAMPAIGN AGAINST ALCOHOL

In spite of the prohibitive measures taken since the beginning of the war, alcohol continues to make its ravages. The authorities are now considering the absolute prohibition of the use of alcohol, as was done in Russia. Naturally, such action has aroused much feeling among the retailers of alcoholics. The committee of commerce, industry and agriculture, at one of its recent meetings, authorized an investigation of this matter. Members of the section on beverages, who were present at the meeting, complained against what they were pleased to term "the persecution of business." Besides the prohibition of the importation of alcohol and the levying of an extra tax on it, dealers are to be restricted to a stock of 100 hectoliters.

Possibly the government will issue an edict absolutely prohibiting the use of these beverages. The liquor dealers regard this as a disaster, not only for commerce, but also for the country. There are 30,000 wholesale liquor dealers in France, and 500,000 retailers. These men, together with their employees, a not inconsiderable number, would be practically without employment, as they would be forced to close their doors. On the other hand, the retailers claim that the use of alcohol for drinking purposes has diminished 50 per cent. since the beginning of the war. The consumption has fallen from 1,800,000 to 900,000 hectoliters. A strong protest was registered at this meeting against all measures tending to suppress the consumption of alcohol, on the ground that the laws now in existence, if properly administered, were sufficient to control the situation. The authorities, however, are of a different opinion. The Chamber of Deputies has enacted a law to repress intoxication, and to police all places in which liquors are sold. It is interesting that at the meeting referred to it was voted that alcoholism is a national peril, but that it also was one of the nation's most valuable assets. It was urged that the production of alcohol for commercial use be encouraged, but that the drinking of alcohol be restricted. Unfortunately, the dealers in alcoholics are not all in favor of this restriction. An anonymous communication presenting this point of view is being distributed widely. It appeals to the people for support to combat what is regarded as a catastrophe for France. It appeals particularly to the temperance advocates, calling their attention to the fact that the prohibition of the use of alcohol would include cognac, rum, curaçao, black-currant ratafia, Madeira wines, quinin and gentian tonics, etc., thus bringing inevitable ruin on France and her colonies, leading to popular uprisings, and last, but not least, the triumph of German beer.

THE NEW BREAD

M. Herriot, head of the commissary department, presented to the Chamber of Deputies rules for regulating the manufacture of a new bread. According to these rules bread may be made with white flour (15 per cent.) mixed with rye, maize, buckweat and beans. Millers must not sell any flour other than this mixture, nor will the bakers be permitted to sell any other bread than this.

PHYSIOLOGIC NUTRITION

M. Gley, a professor in the College of France, recently discussed the elements of nutrition, especially as they apply to the young and to soldiers. Meat, in moderate proportions, he regards as indispensable to the human organism, because it contains the needed albumin; but unless meat contains tryptophan and lysin, it is worthless as a food. Dried fruits, being rich in cellulose, may be substituted for green vegetables, and therefore would be suitable for inclusion in the rations of the soldiers.

THE SUGAR RATION AND THE USE OF SUBSTITUTES

All the departments of France, except Corsica, have accepted the sugar card, to become effective February 15. On or before March 1, the general adoption of this card becomes obligatory. Prefects will be allowed an additional quantity of sugar to be used for the sick, young children and French prisoners of war in Germany. Saccharin must be used by various industries. The minister of foods, M. Herriot, has proposed the authorization of the use of saccharin or any other artificial sweeting substance in the preparation or manufacture of foods and beverages.

The Moving Picture in the Campaign Against the Fly

The French Sanitary League proposes to make use of the moving picture in the campaign against the fly. Special films have been prepared for that purpose. They will be shown for eight days in each of the 4,000 moving picture theaters of France. These films shows the birth and growth of the fly, its habits and haunts, its familiarity with man, and how diseases are conveyed by it. The mosquito also comes in for its share of attention. The mosquito film will be shown principally in southern France. It covers the same ground as do the fly films. The people are also instructed in the methods of prevention of mosquito propagation.

LONDON LETTER

London, Feb. 19, 1917.

The Health of the Navy

At a meeting of the Medical Society of London, Surg.-Gen. H. D. Rolleston described the organization, equipment and methods in operation to deal with the naval wounded and the sick. In modern naval engagements the hospital ships, for obvious reasons, are unable to accompany the fleet and take charge of the wounded. To meet the need it had been suggested that fast 500-ton boats, registered under the Geneva Convention, and having appliances for rapidly rescuing survivors from the sea, should be employed. This, however, has not yet been done. The general health of the grand fleet has been extremely good. In 1913 the average daily percentage of sick in the whole fleet was 2.37, and in 1914, 2.03. The daily average has always been under 1 per cent. Except in the Mediterranean fleet there have been few cases of typhoid fever; in that fleet, however, during the latter part of 1915, the crews of most of the ships were attacked by gastro-enteritis, the infection having been spread by flies, and by men returning from the beach to their ships. The good bill of health shown by the fleet as a whole is a tribute to preventive medicine. Factors in this result are the comparative isolation of the fleets, especially of the grand fleet, rendering the chances of venereal infection and alcoholic excess practically nonexistent, especially in view of the careful quarantine arrangements, supplemented as these measures are by lectures on hygiene to the men, and the provision of healthy forms of recreation. Compared with land battles, a striking number of the men hit in naval engagements are killed outright. This was true also in the Russo-Japanese War. The wounds, however, owing to the absence of soil contamination, are much cleaner. Burns form at least one third of the casualties, and may be due to the ignition of our own cordite, to burning furniture, or to the momentary flash of high explosive shells in a confined space. Shock is found to be excessive in proportion to the amount of tissue damage. For this reason immediate operation is much less frequent than after land battles. In the gas poisoning resulting from explosives, the most hopeful measures are prophylactic; treatment of the established condition is not very hopeful. There was a striking freedom from cholera among the men of the Royal Naval Division, though they were operating in a locality in which the Turks suffered considerably from it. This immunity is attributable to the anticholera inoculations which had been carried out. Among airmen, leakage of the gasoline spray has caused some to become dizzy, while headache and drowsiness may be produced by exhaust gases from the engine. One airman, who had been exposed to low temperatures at a height of 15,000 feet, suffered from frost-bite.

Boric Acid in Cream

Numerous representations were made to the Local Government Board before the war on the subject of boric acid in cream. Some urged that the use of all preservatives should be prohibited, while others maintained that it would be impracticable to carry on the present trade in jugged cream unless some small amount of preservative was added. The department was asked to lay down a maximum limit, and had decided to appoint a small committee, but owing to the war this intention was not fulfilled. The president has now issued an order directing that no more than 0.4 per cent. of boric acid shall be added to cream, and that cream to which boric acid has been added shall be sold as "preserved cream," and prescribing forms of labels to be affixed to the receptacle containing such cream, stating that it contains boric acid and is unsuitable for infants and invalids. The board desires it to be understood that in temporarily forbidding a greater addition percentage of boric acid than 0.4 it must not be regarded as deciding the question proposed for inquiry as to whether or not this amount is injurious to the consumer. The inquiry, when it takes place, may show that the limit should be lower, and dealers are asked to reduce it to the smallest possible amount, or to dispense with it entirely, so that they may find less difficulty in complying with any further restrictions which may be made on the recommendations of the committee when appointed.

Speech Without Use of the Larynx

In the *Journal of Physiology*, Dr. E. W. Scripture has recorded a remarkable case of speech without use of the larynx. The patient was a girl, aged 17, who had undergone tracheotomy at the age of 3. Ever since, she had breathed through a tracheotomy tube and had been unable to breathe when the tube was stopped or removed. Observation with the laryngoscope showed that the top of the pharynx was closed over the larynx and no air passed through. On retching, the larynx was brought up and became visible. Under no circumstances could she make any air pass through the larynx. She could speak distinctly and correctly in a faint, almost toneless voice. Such a condition seemed astonishing, because all speech sounds require breath. Without breath the person may go through all the movements of enunciation, but he will produce no sound; his speech is visible, but not audible. Careful observation revealed the mechanism. A movement of the muscles at the side and front of her neck, just under the jaw, could be seen from the outside; the movement was of a kind that might contract the pharynx. With the mouth open the tongue could be seen to be raised tightly against the rear edge of the palate and the front part of the velum. There was some slight movement on attempting to change the pitch. The mechanism was evident. The air in the pharynx was compressed; it was allowed to escape between the tongue and the velum in such a way as to produce a tone. The tone was produced by causing the surfaces of the tongue and the palate to vibrate somewhat as the vocal cords do. The change in pitch was produced by changes in the tension. In short, the lacking glottis was replaced by an imitation glottis formed by the tongue and the velum. The different vowels were produced by varying the mouth cavity.

BERLIN LETTER

(Received, March 2, 1917)

Berlin, Dec. 20, 1917.

Morbidity Statistics and the War

Owing to the food restrictions, additions to the diet of the sick can be obtained only on physicians' orders, and as these orders must state the nature of the illness, they can be made to serve as bases for a statistical study of the morbidity of certain districts, thus furnishing information which could not be obtained in any other way. That is particularly true of diabetes. In Charlottenburg, 706 requests for food additions were made because of diabetes. There were five cases of conjugal diabetes. In one instance a father and son had diabetes. Fifty-seven per cent. of the cases occurred in males, 43 per cent. in females. The same mortality percentage was noted (Berlin statistics for the five-year period 1905-1910 show 61 per cent. males and 39 per cent. females). The percentage for each thousand population for Charlottenburg (309,000) was 2.3. A survey of the occupation of these patients shows that most of them were merchants; next in order were public officials, academicians and pensioners. The majority of the patients were between 60 and 70 years of age. The death rate was no greater during the war than previously. During the first six months of 1916 the male mortality was lower than it had been at any time during the previous five years; the mortality of the women was about the average. Therefore, the necessary food restrictions have not had any influence on the mortality rate of diabetes.

The influence of the war on the incidence of diabetes has also been studied. Professor Umber found only eleven cases of diabetes among 2,232 soldiers. Von Noorden is of the opinion that the majority of cases of diabetes among soldiers occurred in persons who, previous to their enlistment, were what is termed "hidden diabetics," and therefore military service did not cause the disease, but merely hastened its appearance. Von Noorden's experiences during the war have also strengthened his belief that, excluding certain exceptional instances, diabetes will not develop in any one who was not "born to have the disease." The exceptions are those persons who, for various reasons, have fallen a prey to a disease of the previously healthy pancreas; for instance, arteriosclerosis, trauma, calculus formation, and infections and toxic agents. He does not believe that a persistent and progressive cause of diabetes ever develops because of some condition in the central or sympathetic nervous system. From such a source a transitory hypersuprarenalism may occur, and be accompanied by a temporary increase in the sugar elimination with the appearance of diabetic complications. These factors are more often encountered among the combatants. A soldier who, previous to his enlistment, had a well developed case of diabetes, usually succumbs quickly to the insufficient nourishment and strain of military service. Most of these men were officers in active service who were unwilling to retire. In the milder cases of diabetes the glycosuria is increased in severity during service, but yields quickly to proper treatment at home.

The German Central Book Station for the Blind in Leipzig

This station was opened, December 16. Many books have been provided, enough to supply the demand for twenty years. Every field of study is represented—philosophy, pedagogy, history, geography, law, political economy and civics, art, history of art, literature, biography, medicine, reference works, history of literature, war literature, music and the study of music. There is also a large reading room containing periodicals of all kinds. A special room is provided for music literature and a completely equipped print shop, as well as a large store room.

War Death Rate

In 1911 the death rate per thousand population was 16.3; in 1912, it was 14.6; in 1913, 14.0; in 1914, 16.1; in 1915, 19.7, and during the first six months of 1916 (computed by the year), 17.0. The increase occurred only in cities of 15,000 population and over, including all persons in the military service, especially the wounded. The increase in the mortality for 1916 was only 0.7 per cent. greater than in 1911, certainly not a remarkable increase. The infant mortality during the first year of life was: 1911, 29.7 per cent.; 1912, 24.6 per cent.; 1913, 24.8 per cent.; 1914, 22.7 per cent.; 1915, 13.4 per cent.; 1916 (first half of the year), 11.5 per cent. In other words, a continuous and steady reduction, even during the period of food restriction.

Duration of Prophylactic Smallpox Vaccination

Observation has shown that a single vaccination does not confer permanent immunity from smallpox, and that the second vaccination (made eleven years after the first) conferred permanent immunity. Further, the belief is confirmed that one vaccination confers an immunity of about ten years' duration. The reaction of the tissues against the vaccination itself may be taken as an indication of the activity of the antibodies present in the tissue cells. This applies not to the first, but to subsequent vaccinations. A perfect "take" indicates absence or great attenuation of the antibodies. An imperfect "take" indicates the presence of antibodies in a degree corresponding to the "take." The relationship of age to the protection given by vaccination was studied by Dr. H. A. Gins, one of the associates at the Institute for Infectious Diseases in Berlin. The first immunity had ceased in one fourth of those vaccinated for the second time at the age of 12, whereas the immunity following the second vaccination did not begin to show any sign of waning until the age of 30. After 40 the immunity began to wane in about one third of the vaccinated. It would seem, therefore, that a revaccination at 40 is desirable, as it would prevent the occurrence of smallpox for the remainder of the person's life.

BUDAPEST LETTER

BUDAPEST, Nov. 30, 1916.

The Death of Emperor Francis Joseph

Francis Joseph died, Nov. 21, 1916, at the age of 86, after a reign of forty-seven years. His last illness was of relatively short duration. It began early in November with a slight cold and a cough. His general health was so good that he was able to attend to his duties as usual, although unable to go outdoors. November 15, his condition became worse, his temperature rose to 38.2 C. (100.9 F.) at 4 p. m., and he suffered from fatigue, weakness and a loss of appetite. On the 16th the temperature increased and he became weaker. The attending physicians, Dr. Kerzl, surgeon-general and major, and Dr. Ortner, professor of medicine at the University of Vienna, diagnosed the case as a slight bronchitis. In spite of his illness, the emperor was up and about as late as November 18, giving audiences daily. On the morning of the 19th his condition became serious. Dr. Kerzl and Professor Ortner discovered a pneumonic focus in the right lung, and prescribed quinin and a digitalis preparation. Toward evening the inflammation in the lung decreased slightly; however, the emperor gradually lost strength, although his appetite had improved and he had enjoyed his dinner and drank champagne. Tuesday morning, the fever had risen to 39 C. (102.2 F.), remaining at that height all day despite the administration of antipyretics. At noon he had no appetite, the heart action was feeble, the pulse rate was 108, and the inflammatory focus in the lung was unchanged. During the afternoon the heart gradually became weaker, and subcutaneous injections of camphor were ineffective; at dawn the patient had become stuporous. During the day he was slightly delirious. His last words were, "I am tired."

The body of the emperor was embalmed at Schönbrunn (near Vienna). In accordance with ancient custom, the heart was placed in a silver vessel and the internal organs in a copper jar, and the body together with the silver vessel and the jar were carried into the Hofburg, the royal castle. The interment of the body took place, November 30, amid great pomp.

The medical profession of Austria-Hungary owes a debt of gratitude to the late emperor, who made possible great progress of medical science and marked achievements of the profession. If we compare the condition of the profession at the time of his accession to the Hungarian throne in 1867, when the entire faculty of medicine of the university was located in one building, to its present condition, in which our clinics are universally admired, we cannot forget that the late emperor so led his government that it was able to devote millions of dollars to the development of the universities.

Francis Joseph understood that it was not to the advantage of the medical sciences to be centralized, and he therefore caused the erection of a second university in Kolozsvar (Klausenburg) in 1888, which bore his name, the Francis Joseph Scientific University. Since that time two other universities have been erected, one in Pozsony (Pressburg) and one in Debreczen, both opened during the present war. In 1874, the emperor sanctioned new laws which were the foundation of the new public hygiene and sanitary sciences. These were of great assistance in checking the ravages of the many epidemics which prevailed in the country. It is due to the strict adherence to these laws that no epidemic of contagious diseases developed even during the present war.

Francis Joseph felt great sympathy for suffering, as evidenced by his frequent visits to the hospitals. It gave him pleasure to utter a few consoling words to the patients in the wards, and he continually made liberal donations to the universities and hospitals from his private fortune. During his reign the position of the parish and village doctors was much improved, as they were made state officials with a pension on retirement.

It is an indisputable fact that he took greater interest in medicine than in any other science. During his rule there lived the greatest men of the Vienna school: Schuh and

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SUCCUS CINERARIA MARITIMA

Another Illustration of One of the Weaknesses of the Federal Food and Drugs Act

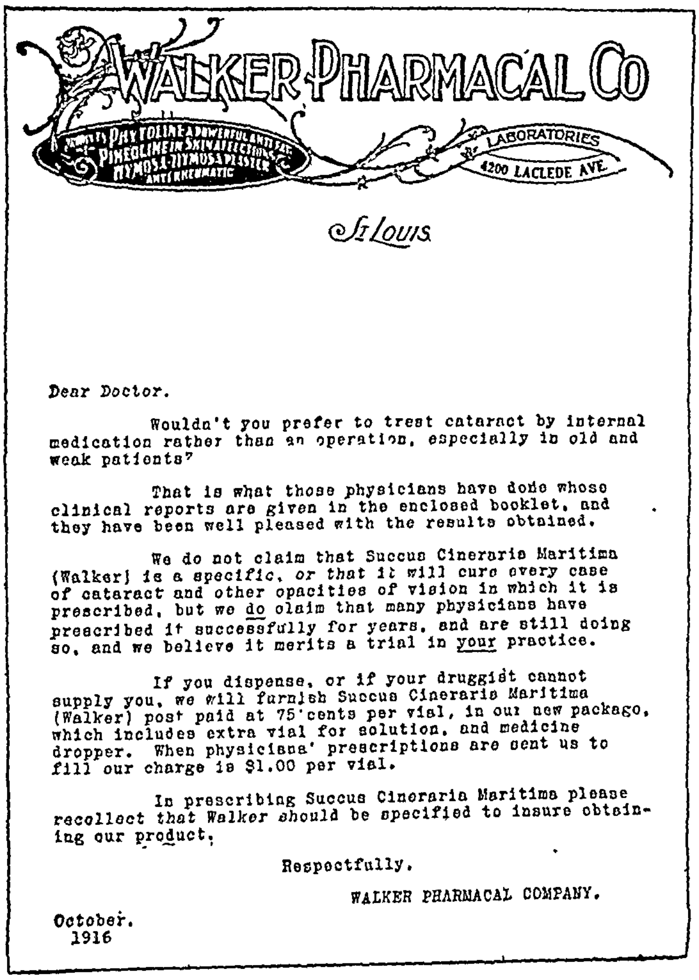
The Walker Pharmacal Company of St. Louis was, we understand, if it is not still, one of the subsidiary concerns of the Luyties Homeopathic Pharmacy Company. It has for years sold a nostrum, "Succus Cineraria Maritima," under the claim that by simply dropping this stuff into the eye twice daily cataract and other opacities of the eye will be cured. For instance:

". . . the only remedy for the relief of cataract and other opacities of vision, which stands before the medical fraternity on a firm foundation of accomplished results. . . ."

". . . possesses a specific power in removing the obstruction to vision."

"In this class of cases [cataract] physicians can place reliance on Succus Cineraria Maritima (Walker) which does not require the services of a specialist but is simply dropped into the eye with an ordinary medicine dropper twice daily. . . ."

". . . has been used with success in cataract, both lenticular and capsular, pterygium and opacities of the cornea, softening the opaque deposits, causing dissolution, and by its stimulating properties, hastening absorption."


PHYTOLINE A POWERFUL ANTI FAT
PINEOLINE IN SKIN AFFECTIONS
HYMOSA-HYMOSA PLASTER
ANTI RHEUMATIC

WALKER PHARMACAL CO
LABORATORIES
4200 LACLEDE AVE.
St Louis

Dear Doctor.

Wouldn't you prefer to treat cataract by internal medication rather than an operation, especially in old and weak patients?

That is what those physicians have done whose clinical reports are given in the enclosed booklet, and they have been well pleased with the results obtained.

We do not claim that Succus Cineraria Maritima (Walker) is a specific, or that it will cure every case of cataract and other opacities of vision in which it is prescribed, but we do claim that many physicians have prescribed it successfully for years, and are still doing so, and we believe it merits a trial in your practice.

If you dispense, or if your druggist cannot supply you, we will furnish Succus Cineraria Maritima (Walker) post paid at 75 cents per vial, in our new package, which includes extra vial for solution, and medicine dropper. When physicians' prescriptions are sent us to fill our charge is $1.00 per vial.

In prescribing Succus Cineraria Maritima please recollect that Walker should be specified to insure obtaining our product.

Respectfully,
WALKER PHARMACAL COMPANY.

October,
1916

Facsimile of a letter dated October, 1916, suggesting the use of "Succus Cineraria Maritima" as a cure for cataract and other opacities of vision. Eight months previously (February, 1916) the Walker Pharmacal Company had pleaded guilty to the charge that the claims that "Succus Cineraria Maritima" was a cure for cataract and other eye opacities were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The federal Food and Drugs Act does not apply to claims made in circular letters or elsewhere than in the trade package.

Succus Cineraria Maritima is advertised to the medical profession in true "patent medicine" style by means of testimonials from doctors, obscure and deceased. The preparation is valueless for the purposes for which it is sold and "has about as much effect on the dissolution or dispersal of opacities due to organic changes in the lens as pouring the same down the back of the patient's neck!" More than five years ago the Council on Pharmacy and Chemistry reported on the worthlessness of the drug, Cineraria Maritima, and, at the same time, The Journal pointed out that the drug would have been forgotten long ago had it not been for the prodigal use of printers' ink by the Walker Pharmacal Company in advertising its Succus Cineraria Maritima.

Facsimile of some of the pages from the booklet that accompanied the letter reproduced in the next column. The obvious intent of this booklet was to lead physicians to believe that Succus Cineraria Maritima will cure "Opacity of the Cornea," "Opacity of the Lens," "Senile Cataract," "Incipient Cataract," "Double Cataract," etc.

These facts are given for the purpose of refreshing the memory of our readers and are but incidental to the object of this article. In due time the federal authorities proceeded against the Walker Pharmacal Company charging that Succus Cineraria Maritima was misbranded under the federal Food and Drugs Act. The government chemists reported that analysis "showed that the product was essentially an aqueous solution of glycerin, boric acid and vegetable drug extractives carrying tannin-like bodies." The direct and inferential claims made in the advertising matter *accompanying the trade package were quoted by the federal* authorities, who pointed out that the Walker Pharmacal Company was selling the nostrum under claims that would create in the minds of the purchasers the belief that Succus Cineraria Maritima was a remedy for cataract and other opacities of the eye causing impaired vision and that it was a cure for senile cataract, trachoma, secondary opacities, etc. These claims the government charged were "false and fraudulent in that the same were applied to the article knowingly, and in reckless and wanton disregard of their truth or falsity," because "in truth and in fact it was not, in whole or in part, composed of, and did not contain, such ingredients and medicinal agents" as would produce the therapeutic effects claimed.

These charges put the matter flatly up to the Walker Pharmacal Company. This company has for years been telling physicians that their stuff *could* and *would do just* what the federal authorities insisted it can *not* and will *not* do. Did the Walker Pharmacal Company *attempt to defend* its claims? Did it demonstrate that Succus Cineraria Maritima would cure cataract? *Did it produce evidence of the* numerous cases of recovery from blindness or partial blindness *which must have been available if the preparation had* the powers claimed for it? No! The Walker Pharmacal Company in February, 1916, pleaded guilty—and was fined a paltry $10 and costs.

This, however, is not the end of the story. The company was prosecuted because it had published the false and fraudulent claims in the trade package, thus bringing the claims within the purview of the federal Food and Drugs Act. Had the Walker Pharmacal Company confined its false statements to medical-journal advertisements, to the circular letters sent to physicians or to any other advertising matter not part of the trade package, it could have snapped its fingers at the Food and Drugs Act.

It was in February, 1916, that the Walker Pharmacal Company pleaded guilty to the charge of making false and fraudulent claims for Succus Cineraria Maritima. In October, 1916, they were still sending out circular letters to physicians urging the use of Succus Cineraria Maritima in the treatment of cataract and enclosing the usual booklet of testimonials claiming cures for cataract and other opacities of the lens and cornea!

Can one conceive a better illustration of the inadequacy of the Food and Drugs Act? The dishonest exploiter of proprietary medicines cares little that the law requires him to keep within certain bounds of truthfulness in the advertising that accompanies the trade package. It isn't the claims in the trade packages that sell the product; it's the advertising in medical journals, in circular letters, etc. Yet, the Food and Drugs Act offers no check or curb on false statements or fraudulent claims made for proprietary or "patent medicines" in any other place than the trade packages.

A few weeks ago The Journal called attention to a flagrant case of fraud and at that time it said: "It is justifiable to assume that when any man, whatever his business, admits in court that he has made fraudulent claims and then continues to make the same claims through channels that are not controlled by penal enactment, that man's standard of business ethics is such that the public needs protection against it. There are many such men in the 'patent medicines' world. The only way in which the public may properly be protected against being defrauded in such cases is for the federal Food and Drugs Act to have its scope extended to cover *all* advertising of the products coming under the purview of the act."

RHEUME OLUM

Report of the Council on Pharmacy and Chemistry

Rheume Olum (Rheumeolum Chemical Co., Seattle, Wash.) is sold as a "solid liniment," put up in collapsible tubes. It is said by the manufacturers to be composed of camphor 7 per cent., chloral hydrate 7 per cent., menthol 2⅛ per cent., methyl salicylate 25 per cent., oil cajuput 2½ per cent., oleoresin capsicum, lanolin, white wax, "qs."

The amount of the powerful constituent, oleoresin of capsicum, is not declared. It is claimed that Rheume Olum "is especially indicated in Rheumatism, Sprains, La Grippe, Tonsilitis, Pleurisy, Otitis, Neuritis, Lumbago, Lame Back, Pneumonia, Bronchitis, Ovarian and all other kinds of Neuralgia, Chest and Throat diseases," and "mild attacks of Appendicitis" are said to have "responded quickly." It is claimed further, that ". . . in any case of rheumatic diathesis or where a counter-irritant, anodyne, rubifacient, or anti-phlogistic remedy is indicated, nothing will more fully meet such requirements." There is no warrant for the claim that this, or any other fixed combination, is indicated whenever a "counter-irritant, anodyne, rubifacient or anti-phlogistic remedy" is required.

The name of the preparation is nondescriptive of its composition. The rules of the Council provide that in the interest of intelligent prescribing, pharmaceutical mixtures of well-known drugs must bear names descriptive of their composition. The name also suggests "rheumatism oil," thus inviting the use of the preparation as a treatment for rheumatism without consideration of its composition.

Rheume Olum is an irrational mixture, as there is no reason for the fixed combination of the several ingredients said to be present. The exploitation of mixtures such as this is conducive to the irrational and haphazard use of drugs. The tendency is well illustrated by the following from the advertising:

> "When using Rheume Olum it is not necessary to eliminate other medication, but is advisable to use it in conjunction with such recognized medication."
>
> "What better combination of drugs can be compounded, which will meet the numerous requirements of the busy physician."

In view of the various conflicts with the rules of the Council "Rheume Olum" was declared not acceptable for admission to New and Nonofficial Remedies.

Correspondence

Compulsory Health Insurance

To the Editor:—In reply to numerous requests from medical correspondents throughout the country regarding the merits of the present propaganda for compulsory health insurance, the following statement has been prepared, which may be of interest to the medical profession at large:

1. As regards the point of view of organized labor, it is asserted by Prof. Irving Fisher, president of the American Association for Labor Legislation, which is primarily responsible for the present propaganda, that "the greater part of labor men and labor organizations who have seriously studied the subject have favored health insurance." (Newark *Evening News*, Jan. 15, 1917.) In flat contradiction to this statement is the strong opposition of the American Federation of Labor, as presented in convincing arguments by its president, Mr. Samuel Gompers, by a unanimous resolution of the executive committee adopted by the last annual convention of the federation, and the conclusions advanced by Mr. Warren S. Stone, grand chief, International Brotherhood of Locomotive Engineers, and of Mr. Matthew Wohl, president of the Photo-Engravers' International Union, and of other representatives of organized labor.

2. It is asserted by the secretary of the American Association for Labor Legislation in the *Forecast*, August, 1916, that "the National Association of Manufacturers has endorsed a plan for health insurance." In flat contradiction of this statement are the arguments advanced by Mr. A. Parker Nevin, counsel of the National Association of Manufacturers, strongly opposing compulsory insurance as inimical to American industry. To the same effect is a resolution of the Chamber of Commerce of the State of New York, reading in part "this chamber is opposed to the passage of Senate Bill 69, and opposed to the passage of any similar bill at this time." Strong opposition has also been offered by the New York Board of Trade and Transportation and the social insurance department of the National Civic Federation, composed of representatives of organized labor, organized industries and the interests of the general public, declaring itself "opposed to the contemplated legislation with reference to compulsory health insurance as inimical to the best interests, present and future, of the workers of the nation" (adopted Feb. 20, 1917).

3. It has been asserted by Dr. Ira S. Wile, in a paper on "Health Insurance from the Viewpoint of the Physician," that "as far as the general proposition of health insurance is concerned, it may be admitted that physicians in general are in favor of it." This assertion is in flat contradiction to the fact that the American Medical Association has adopted no resolutions on the subject one way or the other; that according to the special inquiry of Dr. Delphey of New York, twenty-four state societies had taken no action with reference to the matter, four were decidedly opposed, two were indifferent, and only two were distinctly favorable. Furthermore, the New York County Medical Association adopted a recent resolution to the effect that "this society disapproves of the medical provisions of the bill for compulsory health insurance and the appointment of a legislative commission to study the subject, and directs its Committee on Legislation and delegates to the Medical Society of the State of New York to take proper measures to oppose its passage by the legislature." Of equal importance is the unanimous report of a special committee of the Chicago Medical Society, adopted Feb. 13, 1917, in which it is said that compulsory health insur-

College	Year Grad.	Per Cent.
Harvard University (1915) 75.1;	(1916)	76.1, 83.2
Tufts College Medical School (1913) 75; (1915) 77.1;	(1916)	75.3, 77.2, 78.2, 79.5, 81
Dartmouth Medical School	(1914)	77.3
Albany Medical College	(1914)	79.6
Long Island College Hospital	(1899)	75
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1912)	77.3
Woman's Med. Coll. of Pennsylvania (1899) 75;	(1915)	81.4
University of Vermont	(1915)	77.6
McGill University	(1916)	80.2
FAILED		
Chicago College of Medicine and Surgery	(1916)	66.5
Loyola University	(1916)	73.5
College of Phys. and Surgs., Boston* (1913) 54.6; (1915) 59.6;	(1916)	61.5, 62.7.
Tufts College Medical School	(1916)	72
Columbia University	(1892)	53.5
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1916)	68
Medico-Chirurgical College of Philadelphia	(1916)	67.2
University of Vermont	(1912)	66.7
University of Berlin	(1903)	54.8
University of Naples	(1912)	60.7

* Reported not recognized by the Massachusetts Medical Society.

Rhode Island November Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Nov. 15-16, 1916. The total number of subjects examined in was 7; total number of questions asked, 63; percentage required to pass, 80. The total number of candidates examined was 7, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Tufts College (1915) 82.3, 82.5;	(1916)	80.1, 89.4
Jefferson Medical College of Philadelphia (1912) 92.6;	(1916)	91
University of Vermont	(1916)	86.6

South Carolina November Report

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, Nov. 14-16, 1916. The total number of subjects examined in was 16; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 28, of whom 11 passed, including 1 osteopath, and 17 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1916)	75.1
Atlanta Medical College (1915) 77;	(1916)	75, 83
University of Georgia	(1914)	75
University of Maryland (1909) 75;	(1915)	79.7
Harvard University	(1913)	81.5
Medico-Chirurgical College of Philadelphia	(1915)	84.4
Meharry Medical College	(1916)	81.6
FAILED		
Birmingham Medical College	(1915)	66.7
Atlanta College of Physicians and Surgeons	(1912)	71.2
Atlanta Medical College (1914) 70.7;	(1915)	65.6
Southern College of Medicine and Surgery	(1914)	66.6
Loyola University	(1916)	67
Woman's Medical College of New York Inf.	(1899)	67.1
North Carolina Medical College	(1910)	67
University of Oklahoma	(1915)	70.2, 70.4
Meharry Medical College (1914) 70.4;	(1916)	70
Memphis Hospital Medical College	(1911)	55.5, 59.5
University of Tennessee	(1905)	47.7
Medical College of Virginia	(1916)	61.4

Delaware December Report

Dr. Henry W. Briggs, chairman of the Medical Council of Delaware, reports the written examination held at Dover and Wilmington, Dec. 12-14, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Johns Hopkins University	(1916)	84.7
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	85.5
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1916)	87.7
Medico-Chirurgical Coll. of Philadelphia (1915) 80.1;	(1916)	87.3
University of Pennsylvania	(1913)	85.5
FAILED		
University of Naples	(1914)	68

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Columbian University	(1898)	Dist. Colum.
University of Pennsylvania (1889)	(1913)	Penna.

Book Notices

The Clinical Diagnosis of Internal Diseases. By Lewellys F. Barker, M.D., LL.D., Professor of Medicine, Johns Hopkins University. Three Volumes. Cloth. New York: D. Appleton & Co., 1916.

Dr. Barker's work is limited wholly to diagnosis, but such limitation does not mean that the work is of limited scope, for clinical diagnosis involves an extensive knowledge of anatomy, physiology, pathology, chemistry and laboratory methods; in fact, every phase of the practice of medicine except therapeutics. If there is an actual science of medicine, that science has reached its highest development in diagnosis. The clinician of wide experience who has at his ready command the knowledge which enables him to outline the findings of his complete examination and then to name the disease condition is practicing scientific medicine.

The book is issued in three volumes divided into numerous parts: The first part concerns history at examination and general importance of diagnostic methods; the second part is devoted wholly to the use of the Roentgen ray; the third part, to the various fluids of the body, giving in detail the methods of obtaining these fluids and of examining them; the fourth part concerns the infectious diseases and those due to external physical causes; the fifth part, diseases of the respiratory tract, and the sixth part, the diseases of the circulatory system. Each section is accompanied by an important list of bibliographic references which the author has selected with a view to their historical importance, their accessibility and their newness.

Of especial interest in the first volume is the section on methods of examining the movements of the heart and blood vessels. The clinician to whom McKenzie's ink polygraph and Erlanger's apparatus and the electrocardiograph are merely mechanical curiosities will find here excellent illustrations of these instruments, with outlines of their importance and usefulness in actual diagnosis, and the pages which follow are profusely illustrated with examples taken from the work of these instruments. Volume II is devoted to the blood, digestive system and urology, and Volume III to muscles, bones, joints, the nervous system and metabolism.

To attempt a complete review of this extensive work, even were unlimited space available would, no doubt, be futile. There are points on which every one would not agree with the author. There are, perhaps, omissions of work which to some has seemed significant, and inclusion of other studies which are possibly questionable. But the large amount of exceedingly valuable material, well written and well presented, far exceeds any minor faults which the books may contain. The articles are accompanied with numerous illustrations, many of them in color, the type is large and easily readable, and there are numerous subheadings which enable rapid reference to any subject. Professor Barker has prepared a monumental work, and the publishers have done their share in presenting a work that is a credit to American medicine.

The Surgical Clinics of Chicago. Volume I, Number 1. Published bimonthly. Cloth. Price per year, $14. Pp. 221, with 83 illustrations. Philadelphia: W. B. Saunders Company, 1917.

"The Surgical Clinics of Chicago" is in a way a successor of the Surgical Clinics of Dr. John B. Murphy, which naturally ended with the death of their distinguished author. The first number contains clinics by Drs. A. D. Bevan, A. J. Ochsner, E. Wyllys Andrews, L. L. McArthur, Dean D. Lewis, Carl Beck, Allen B. Kanavel, D. N. Eisendrath, Kellogg Speed, S. C. Plummer, E. W. Ryerson and D. B. Phemister.

The clinics are interesting and instructive. The physician of imagination can picture the patients, can follow the steps of the operation and can, perhaps, learn better from these clinics some of the surgery which is described than he could have learned from an upper seat in the amphitheater when the clinic was given. This is especially true because of the numerous excellent pictures.

The *British Journal of Surgery*, recently reviewing the Murphy Clinics as a whole, notes that the first issues were marked by somewhat careless and indifferent editing, but that latterly this condition had greatly improved. The first issue of the Surgical Clinics of Chicago is marked by many striking features; conspicuous among these are the profuseness and excellence of the illustrations, the extensive surgical material offered by the Chicago surgeons, and the somewhat indifferent editing or literary style. It is, of course, impossible to duplicate the intonation of the surgeon's voice, his gestures, and his eccentricities of speech or of action. Would it not be better, then, to edit the reading matter of the clinics in literary style, deleting useless words, verbal eccentricities, and rambling repetitions?

Water Supply (Considered Principally from a Sanitary Standpoint). By William P. Mason, Professor of Chemistry, Rensselaer Polytechnic Institute Fourth Edition Cloth. Price, $3 75 net. Pp. 528, with illustrations. New York: John Wiley & Sons, 1916.

After outlining the methods used in ancient times to insure a supply of pure water, the author discusses drinking water and water-borne diseases, and describes natural and artificial means of purifying water and making it safe. Purification, storage and distribution of water for large communities throughout the world are completely reviewed, different types of purification plants being illustrated and described. Results obtained with different methods are tabulated. Many examples of the inception of water-borne diseases and epidemics are given All these subjects are presented so interestingly that the reader, even though not versed in the technicalities of the subject, will enjoy the book and profit by reading it. Methods of water analysis capable of ready application by the field sanitarian with simple portable apparatus have not been considered The author may not be in sympathy with rough and ready methods so often needed by field men. While this may be considered an omission in the light of present day advances in field sanitation work, it is probable that these matters of smaller import should not have place in a work of this size

Gunshot Wounds: How They Are Inflicted, Their Complications and Treatment. By Colonel Louis A. La Garde, United States Army Medical Corps (Retired) Second Edition Cloth. Price, $4. Pp 457, with 159 illustrations Prepared under the Direction of the Surgeon General United States Army and Published by Authority of the Secretary of War New York: William Wood & Co, 1916

Owing to the unprecedented production of gunshot wounds in the two years which have elapsed since the publication of the first edition of this book, the author feels that any work on gunshot injuries, no matter how recently produced, requires extensive additions He has revised somewhat the chapter on infection of gunshot wounds, and has largely rewritten the chapter on the general treatment of gunshot wounds, so as to include a description of the methods used by Alexis Carrel, Sir A E. Wright, Col. H M. W. Gray, and others at the front Further additions are found in the chapters on the treatment of gunshot wounds of the chest and of the abdomen. A chapter on the war gives statistics of losses, etc., up to the time the book went to press. While it is acknowledged that the figures are far from being complete and that they are made from general estimates, rather than from official sources, they are quite interesting and show the enormous loss of life which has already taken place

Obstetrics A Practical Text Book for Students and Practitioners By Edwin Bradford Cragin, A B, A M, M D, Professor of Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, New York Assisted by George H Ryder, A B, M D, Instructor in Gynecology, College of Physicians and Surgeons, Columbia University, New York Cloth Price, $6 net Pp. 858, with 512 illustrations Philadelphia: Lea & Febiger, 1916.

Through his experience as a teacher of obstetrics and gynecology and as the medical head of Sloane Hospital for Women, where over 1,800 deliveries occur annually, the author is well qualified to present a practical textbook on these subjects. Recognizing that many textbooks are too large for the student, he has omitted lengthy discussion and has covered the subjects concisely. The illustrations of the subject of abortion are new and so well done that the student cannot help but understand. The author has wisely placed the subject of pelvimetry and antepartum examinations under the management of normal pregnancy.

Social Medicine, Medical Economics and Miscellany

THE ILLINOIS CONSOLIDATION BILL BECOMES A LAW*

The so-called consolidation bill which has just become a law in Illinois is to be known legally as "the Civil Administrative Code of Illinois." It provides for nine departments of the state government, namely, Finance; Agriculture; Labor, Mines and Minerals; Public Works and Buildings; Public Welfare; Public Health; Trade and Commerce; Registration, and Education. Each department is to have a director as its head. The directors of the Departments of Finance, Public Works and Buildings, Public Welfare, and Trade and Commerce receive $7,000 a year; the directors of the Departments of Agriculture, and Public Health receive $6,000 a year, and the directors of the Departments of Labor, Mines and Minerals, and Registration and Education receive $5,000 a year. In both the Departments of Public Health and of Registration and Education, provision is made for assistant directors, with salaries of $3,600. In the Department of Public Health, provision is made for a board of public health advisers composed of five persons.

The following extracts from the law give the most important provisions regarding the two departments in which physicians are most interested:

DEPARTMENT OF PUBLIC HEALTH

The director of public health shall be a person licensed to practice medicine and surgery in this state and shall have had at least five years' practical experience in the practice of medicine and surgery in this state and at least six years' practical experience in public health work.

The assistant director of public health shall be a person licensed to practice medicine and surgery in this state and shall have had at least five years' practical experience in the practice of medicine and surgery in this state and at least three years' practical experience in public health work

Neither the director, assistant director, superintendent of registration, nor any other executive and administrative officer in the department of registration and education shall be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, architecture, or structural engineering, either as teacher, officer or stockholder, nor shall he hold a license or certificate to exercise or practice any of the professions, trades or occupations regulated.

ALL FEES TO GO INTO STATE TREASURY

The gross amount of money received by every department, from whatever source, belonging to or for the use of the state, shall be paid into the state treasury, without delay, not later in any event than ten days after the receipt of the same, without any deduction on account of salaries, fees, costs, charges, expenses or claim of any description whatever. No money belonging to, or for the use of, the state shall be expended or applied by any department except in consequence of an appropriation made by law and upon the warrant of the auditor of public accounts

POWERS OF THE DEPARTMENT OF PUBLIC HEALTH

The department of public health shall have power:

To exercise the rights, powers and duties vested by law in the state board of health, its secretary and executive officer, other officers and employees, except the rights, powers and duties vested by law in the state board of health under the act to regulate the practice of medicine and the act to regulate the practice of embalming,

To have the general supervision of the interests of the health and lives of the people of the state;

To act in advisory capacity relative to public water supplies, water purification works, sewerage system, and sewage treatment works, and to exercise supervision over nuisances growing out of the operation of such water and sewage works, and to make, promulgate and enforce rules and regulations relating to such nuisances;

To make such sanitary investigations as it may, from time to time, deem necessary for the preservation and improvement of public health;

To make examinations into nuisances and questions affecting the security of life and health in any locality in the state;

To maintain chemical, bacteriological and biological laboratories, to make examinations of milk, water, sewage, wastes, and other substances and to make such diagnosis of diseases as may be deemed necessary for the protection of the people of the state;

To purchase and distribute free of charge to citizens of the state diphtheria antitoxin, typhoid vaccine, smallpox vaccine and other sera, vaccines and prophylactics such as are of recognized efficiency in the prevention and treatment of communicable diseases;

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* Compare Progressive Legislation in Illinois, Current Comment, The Journal A. M. A., this issue, p 855

To obtain, collect and preserve such information relative to mortality, morbidity, disease and health as may be useful in the discharge of its duties or may contribute to the promotion of health or to the security of life in this state;

To make investigations and inquiries with respect to the causes of disease, especially epidemics, and to investigate the causes of mortality and the effect of localities, and other conditions upon the public health, and to make such other sanitary investigations as it may deem necessary for the preservation and improvement of the public health;

To keep informed of the work of local health officers and agencies throughout the state;

To promote the information of the general public in all matters pertaining to public health;

To supervise, aid, direct and assist local health authorities or agencies in the administration of the health laws;

To enlist the cooperation of organizations of physicians and other agencies for the promotion of the public health in the improvement of health and sanitary conditions throughout the state;

To make sanitary, sewage, health and other inspections and examinations for the charitable, penal and reformatory institutions and the normal schools;

To inspect, from time to time, all hospitals, sanitaria, and other institutions conducted by county, city, village or township authorities, and to report as to the sanitary conditions and needs of such hospitals, sanitaria and institutions to the official authority having jurisdiction over them;

To print, publish and distribute documents, reports, bulletins, certificates and other matter relating to the prevention of diseases and the health and sanitary condition of the state.

DEPARTMENT OF REGISTRATION AND EDUCATION

The department of registration and education shall have power:

To exercise the rights, powers and duties vested by law in the board of education of the state of Illinois, the board of trustees of the Southern Normal University at Carbondale, the board of trustees of the Northern Illinois State Normal School at DeKalb, the board of trustees of the Eastern Illinois State Normal School at Charleston, and the board of trustees of the Western Illinois State Normal School at Macomb;

To exercise the rights, powers and duties vested by law in the board of veterinary examiners and the state board of live stock commissioners relating to the practice of veterinary medicine and surgery in the state of Illinois;

To exercise the rights, powers and duties vested by law in the board of examiners of horseshoers;

To exercise the rights, powers and duties vested by law in the state board of examiners of architects;

To exercise the rights, powers and duties vested by law in the state board of examiners of structural engineers;

To exercise the rights, powers and duties vested by law in the state board of health relating to the practice of medicine, or any of the branches thereof, or midwifery;

To exercise the rights, powers and duties vested by law in the state board of health relating to the regulation of the embalming and disposal of dead bodies, and for a system of examination, registration and licensing of embalmers;

To exercise the rights, powers and duties vested by law in the state board of pharmacy;

To exercise the rights, powers and duties vested by law in the Illinois State Board of Dental Examiners;

To exercise the rights, powers and duties vested by law in the Illinois State Board of Nurse Examiners;

To exercise the rights, powers and duties vested by law in the state board of optometry;

To exercise the rights, powers and duties vested by law in the state board of barber examiners, its officers and employees;

To investigate and study the natural resources of the state and to prepare plans for the conservation and development of the natural resources and for that purpose the officers and employees thereof may enter and cross all lands in this state, doing no damage to private property;

To cooperate with and advise departments having administrative powers and duties relating to the natural resources of the state, and to cooperate with similar departments in other states and with the United States government;

To conduct a natural history survey of the state, giving preference to subjects of educational and economic importance;

To publish, from time to time, reports covering the entire field of zoology and botany of the state;

To maintain a state museum, and to collect and preserve objects of scientific and artistic value, representing past and present fauna and flora, the life and works of man, geological history, natural resources, and the manufacturing and fine arts;

To supply natural history specimens to the state educational institutions and to the public schools;

To investigate the entomology of the state;

To investigate all insects dangerous or injurious to agricultural or horticultural plants and crops, live stock, to nursery trees and plants, to the products of the truck farm and vegetable garden, to shade trees and other ornamental vegetation of cities and villages, to the products of the mills and the contents of warehouses, and all insects injurious or dangerous to the public health;

To conduct experiments with methods for the prevention, arrest, abatement and control of insects injurious to persons or property;

To instruct the people, by lecture, demonstration or bulletin, in the best methods of preserving and protecting their property and health against injuries by insects;

To publish, from time to time, articles on the injurious and beneficial insects of the state;

To study the geological formation of the state with reference to its resources of coal, ores, clays, building stones, cement, materials suitable for use in the construction of roads, gas, mineral and artesian water and other products;

To publish, from time to time, topographical, geological and other maps to illustrate the resources of the state;

To publish, from time to time, bulletins giving a general and detailed description of the geological and mineral resources of the state;

To cooperate with the United States Geological Survey in the preparation and completion of a contour topographical survey and map;

To collect facts and data concerning the water resources of the state;

To determine standards of purity of drinking water for the various sections of the state;

To publish, from time to time, the results of its investigations of the waters of the state to the end that the available water resources of the state may be better known and that the welfare of the people in the various communities may be conserved;

To make analyses of samples of water from municipal or private sources;

To distribute, in its discretion, to the various educational institutions of the state specimens, samples and materials collected by it after the same have served the purposes of the department.

LICENSING OF PROFESSIONS

The department of registration and education shall, wherever the several laws regulating professions, trades and occupations which are devolved upon the department for administration so require, exercise, in its name, but subject to the provisions of this act, the following powers:

Conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; and pass upon the qualifications of applicants for reciprocal licenses, certificates and authorities;

Prescribe rules and regulations for a fair and wholly impartial method of examination of candidates to exercise the respective professions, trades or occupations;

Prescribe rules and regulations defining, for the respective professions, trades and occupations what shall constitute a school, college or university, or department of a university, or other institutions, reputable and in good standing and to determine the reputability and good standing of a school, college or university, or department of a university, or other institution, reputable and in good standing by reference to a compliance with such rules and regulations;

Adopt rules providing for and establishing a uniform and reasonable standard of maintenance, instruction and training to be observed by all schools for nurses which are to be deemed reputable and in good standing and to determine the reputability and good standing of such schools for nurses by reference to compliance with such rules and regulations;

Establish a standard of preliminary education deemed requisite to admission to a school, college or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities;

Conduct hearings on proceedings to revoke or refuse renewal of licenses, certificates or authorities of persons exercising the respective professions, trades or occupations, and to revoke or refuse to renew such licenses, certificates or authorities;

Formulate rules and regulations which require in any act to be administered.

None of the above enumerated functions and duties shall be exercised by the department of registration and education, except upon the action and report in writing of persons designated from time to time by the director of registration and education to take such action and to make such report, for the respective professions, trades and occupations as follows:

For the medical practitioners, embalmers and midwives, five persons, all of whom shall be reputable physicians licensed to practice medicine and surgery in this state, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested directly or indirectly, in any medical college or medical institution. For the purpose of preparing questions and rating papers on practice peculiar to any school, graduates of which may be candidates for registration or license, the director may designate additional examiners whenever occasion may require;

For the pharmacists, five persons, each of whom shall be a competent registered pharmacist, in the state, and shall have had ten years' practical experience in the dispensing of physicians' prescriptions since such registration;

For the dentists, five persons, each of whom has been a licensed practitioner of dentistry or dental surgery in this state for a period of five years or more, and no one of whom is in any way connected with or interested in any dental college or dental department of any institution of learning;

For the registered nurses, five persons, each of whom is a registered nurse in this state and has been graduated for at least a period of five years from a school for nurses in good standing, and, during the course of training, has served for two years in a general hospital, and three of whom shall have had at least two years' experience in education work among nurses;

For the optometrists, five persons from among such practicing optometrists of the state as have had not less than five years' practical experience in optometry, no one of whom is a member of any optical school or college or instructor in optometry or person connected in any way therewith, or is a manufacturer, jobber or jobbing representative;

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession, shall be sufficient authority upon which the director of registration and education may act.

In making the designation of persons to act for the several professions, trades and occupations, the director shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein

Whenever the director is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority, he may order reexaminations or rehearings by the same or other examiners

All certificates, licenses and authorities shall be issued by the department of registration and education, in the name of such department, with the seal thereof attached

Medicolegal

Removal of Public Officers by State Board of Health

(State ex rel Attorney General vs McDowell (Miss), 71 So R. 867; also Ware vs State ex rel. Poole (Miss), 71 So. R. 868)

The Supreme Court of Mississippi, Division B, says that the question to be determined in the first or McDowell case was whether or not, under a statute giving the state board of health authority to remove the state factory inspector "for cause," the board has the authority to remove such officer without specifying any cause satisfactory or otherwise and to remove him without a hearing. In the court's opinion, the authority conferred on the board of health to remove the factory inspector can be exercised only on "charges, notice and an opportunity to be heard." While the board of health under the statute in question has the authority to remove the factory inspector for cause, this cause must be a good cause, and not a mere arbitrary exercise of the authority thus conferred The factory inspector must be informed of the nature of the charges preferred against him, and an opportunity must be afforded him to be heard; in other words, he is entitled to his day in court.

The same court says, in the second or Poole case, which involved the question of the power of the state board of health to remove a county health officer, that the case was ruled by the principle announced in the McDowell case, which was argued and submitted rather as a companion case. The position of county health officer is one provided by the legislature many years ago, and the incumbent is beyond question a servant of the public, and responsible to the people of his county for the manner in which he discharges the large and important duties imposed on him by statute. Matters affecting the public health and quarantine are intrusted to him The statute contemplates that if he is faithful to the trust imposed, he will serve at least a term of two years, and it is to be noted that his salary is fixed by the year The legislature never contemplated or intended that the state board of health should have or exercise the power of removal "at any meeting" without reason, notice or hearing. The proper construction of the statute simply means that the state board may exercise the power of removal for good or reasonable cause. What is or is not reasonable cause may well be a matter largely within the discretion of the board, but certain it is that the legislature never intended that one of our public officers should be thrust out of office without any reason whatever This interpretation of the statute does no violence to the language employed by the legislature. If this is not the meaning of that section giving the board the right to remove, then the other provision of the statute fixing the term of office at two years would mean nothing.

Not Bound by Diagnosis of Physician

(Southern Woodmen vs Davis (Ark), 187 S. W. R. 638)

The Supreme Court of Arkansas, in affirming a judgment in favor of Plaintiff Davis for $1,700 for alleged total disability, says the proof in the blanks filled out tended to show a total and permanent disability, while the ailment disclosed in the examination of the physician was shown in the affidavit of the physician to be tuberculosis The society caused an examination to be made by another physician, who failed to find any indications of the disease named, and refused payment, whereupon this suit was commenced to recover the amount The proof adduced by the plaintiff tended to show, not a case of tuberculosis, but of interstitial nephritis or Bright's disease The evidence was sufficient to establish the fact that the plaintiff was incurably afflicted with that disease, and that he was totally and permanently incapacitated from any kind of manual labor such as was necessary to carry on his business of farming or logging. The defendant contended that he was not entitled to recover because he did not furnish satisfactory proof of loss. The contention was that his case must fail because he sent in proof of disability on account of tuberculosis, and that he subsequently abandoned that and undertook to prove that he was suffering from another disease which caused his alleged total disability. But the court does not think there was any merit in the defendant's contention, for it simply came down to the point whether or not the plaintiff was bound by the diagnosis of the physician as to the cause of his disability. He furnished proof on blank forms prescribed by the home office of the defendant society, and those proofs tended to show that he was permanently and totally disabled, and his right to recover was not defeated because there was an error made by the physician in the diagnosis of his case.

Society Proceedings

COMING MEETINGS

Alabama State Medical Association, Montgomery, April 17 20
Am. Assn of Pathologists and Bacteriologists, New York, April 6 7.
American Gastro Enterological Assn , Atlantic City, April 30 May 1.
American Urological Association, Chicago, April 2 4
Arizona Medical Association, Douglas, April 17-18
Arkansas Medical Society, Little Rock, May 1 3
California State Medical Society, San Diego, April 17-19.
Georgia Medical Association, Augusta, April 18 20
Illinois State Medical Society, Bloomington, May 8 10.
Iowa State Medical Society, Des Moines, May 9 11.
Kansas Medical Society, Salina, May 2 4
Louisiana State Medical Society, Alexandria, April 17 19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24 26.
Mississippi State Medical Association, Jackson, May 8 9
Missouri Valley Medical Society, Keokuk, Ia , March 22 23.
Nebraska State Medical Association, Lincoln, May 8 10
New York State Medical Society, Utica, April 24 26
North Carolina State Medical Society, Asheville, April 17
Oklahoma State Medical Assn , Lawton Medicine Park, May 8 10
South Carolina Medical Association, Spartanburg, April 17 19
Tennessee State Medical Association, Nashville, April 3 5
Texas State Medical Association, Dallas, May 8 10

THE THIRTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 6, 1917

Dr. Henry M. Bracken, St Paul, in the Chair

Public Health Training in Universities

Dr George E Vincent, President-Elect, Rockefeller Foundation: Successful public health training must be carried on either by universities or by schools in close affiliation with them This is not to say that the university can provide all of the necessary conditions. The closest and most sympathetic cooperation with agencies which are carrying on actual public health activities is of fundamental importance. All the schools provide for practical field work The need of connecting the experience in the laboratory and the material of the lecture room with the actual concrete problems of the profession is universally recognized

A few phases of public health work seem either to have been overlooked or only incidentally recognized For example, the function of public health education and publicity is one which deserves study and for which special types of training should be provided The education of public opinion in a democratic country is necessary for the progress and stability of public health work. In an attempt to outline the chief lines of future development, it may be well to enumerate the different types of public health functionaries for whom training will have to be provided. These fall into a number of fairly well defined groups: 1. Public health administrators; men with fundamental and thorough training who are capable of serving as federal functionaries, and as state, city and county health officers. 2. Laboratory men who have had sufficient contact with field work to be thoroughly intelligent about their duties. In this group may be included also statisticians whose training in public health enables them to interpret with some intelligence the data with which they deal, and to estimate with reasonable accuracy the coefficient of corruption and the mean of mendacity by which vital statistics are so largely vitiated. 3. Administrative specialists who, with a background of general training, have become proficient as epidemiologists, authorities in tuberculosis, or specialists in venereal diseases. 4. Sanitary engineers who deal with engineering problems not merely from a physical but from a biologic point of view. 5. School medical officers who are more than practitioners and see the health of the school in its wide relations to community life on the one hand and to individual efficiency on the other. 6. Specialists in public health education and publicity who combine with accurate knowledge the capacity to apply practically the principles of individual and group psychology. 7. Public health nurses with special training and aptitude for the important duties which more and more will devolve on them. These nurses will be differentiated, for example, into the city nurse, the town nurse and the rural nurse. 8. Sanitary inspectors of many kinds, the artisans of the public health service, who nevertheless require a training which will enable them to do their work intelligently and with satisfaction both to themselves and to the community.

In order to insure this unified, purposeful kind of organization, the agency for teaching public health must have reasonable autonomy. It will not do to make the new curriculum a mere by-product of medical education or subject to its sole control. There should be a special administrative board and a director imbued with the ideals of preventive medicine. Only under such conditions can a public health teaching organization gain the requisite authority, coordinated efficiency and professional spirit. The outlook for public health in the United States is encouraging. There is an increasing recognition of its economic and social importance as well as its bearing on individual happiness.

Public Health Instruction in Medical Schools

Dr. M. J. Rosenau, Boston: We must keep clearly before us that the purpose of teaching public health in medical schools is not to make health officers of medical students, but to broaden their training so as to fit them better for the practice of medicine. Special training for a public health career requires special courses and even special schools. The importance of training health officers deserves the recognition which it is getting. The teaching of hygiene may then be used as one of the means to broaden the point of view of the medical school and to widen the horizon of the medical student. The medical profession is one of the most important links in the sanitary chain. The efficiency of any system of health administration depends on the cooperation of a trained group of skilled physicians, acting independently and collectively. No medical school can ever be complete enough to offer facilities to cover the entire field of public health instruction. Cooperation must be established with federal, state and city health departments, and with many philanthropic and semipublic agencies. Milk stations, baby welfare work, antituberculosis societies, psychopathic clinics, institutions for the feebleminded, water and sewage boards, hospitals for contagious diseases, board of health laboratories, quarantine stations, medical inspection of schools, and many other agencies may be utilized with advantage in teaching the subject.

DISCUSSION ON THE PAPERS OF PRESIDENT VINCENT AND DR. ROSENAU

Dr. Victor C. Vaughan, Ann Arbor, Mich.: Medicine consists of that knowledge which can be utilized in the prevention or cure of disease. Hygiene consists of that knowledge which can be used in the prevention of disease. No one can teach medicine without teaching hygiene. No student can read a textbook on any infectious disease without getting some knowledge of its prevention, so that the teaching of preventive medicine necessarily goes with that of curative medicine. The clinical teacher must discuss antitoxin; he must discuss the diphtheria bacillus, how the disease is spread, how it is prevented. This is true of other infectious diseases. In discussing smallpox and typhoid fever he must bring out the principles of vaccination, and so on. Notwithstanding the fact that preventive medicine is taught along with curative medicine, there must be a distinct and well defined course in hygiene per se. As dean of a medical school, I try to take into consideration all the subjects that must be taught in that school, and not overemphasize or magnify what I myself teach. All my students must read either Rosenau's "Preventive Medicine" or Harrington's "Hygiene." We have optional courses in water analysis, food analysis and sanitary surveys. The course in hygiene includes those things not likely to be taught from other chairs, as, personal hygiene, food, drink, clothing, exercise and mental hygiene. We then take up the hygiene of the home, ventilation, heating, the hygiene of the community, municipal hygiene, rural hygiene, state hygiene and national hygiene. In studying hygiene we study the law, the public acts of various cities in Michigan especially, although I encourage students to make a special study of the acts of the state in which they live or intend to practice. No better or more efficient course in hygiene can be given than would be secured by universal military training.

Dr. C. E. Cantrell, Greenville, Texas: The people of this country, outside of large cities, have not men qualified to do this work. The universities must do graduate teaching.

Dr. H. B. Hemenway, Evanston, Ill.: Malcolm Watson says that a sanitarian has to approach the subject through medical practice, a handicap which very few men have ever been able to overcome. The medical profession has been the greatest stumbling block to sanitary progress in the past. For the trained specialist a school should be entirely independent. There is a great difference between the work of the public sanitarian and that of the medical profession. One of the great weaknesses in our administration has been ignorance of law.

Dr. M. F. Boyd, Iowa City, Iowa: Those engaged professionally in public health work look forward to the time when the public health administration of this country will be in the hands of professionally trained sanitarians, even though the most optimistic of us will admit that that time is far off. Who is going to supervise the health of the people in the meantime? The medical profession. No profession is so well qualified to handle public health work under present circumstances. If our medical schools would devote more attention to this subject, an immense improvement would result. The men who are destined at some time in their practice to serve as local health officers would understand their duties. That is perhaps the best solution of the problem until the advent of whole time health officers professionally trained as such. The American Public Health Association, realizing the difficulties which exist at present, at the Cincinnati meeting of 1916 passed a resolution creating a permanent committee on public health education. One of the duties of the committee is to endeavor, in the course of years, to increase the amount of time and attention paid to the subject in medical schools. To that end they directed that the committee cooperate with the Council on Health and Public Instruction and the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges, and to this end, as representatives of this body, I would urge that these councils of the American Medical Association appoint representatives to cooperate with the Committee on Public Health Education of the American Public Health Association.

Dr. A. W. Abbott, Philadelphia: Dr. Rosenau asked in his questionnaire whether I regarded the number of hours allotted to me at the university for teaching hygiene sufficient? I replied that I did. I am opposed to increasing the complexities of our medical curriculum. That of the University of Pennsylvania differs little from that of other good schools.

They all want remodeling. Hygiene is too big a subject to be taught in toto in any course except a special course in hygiene. As a part of the medical course, the most that one can aspire to do is to give the candidate for a medical degree a review of the problems which have been accomplished.

Dr. John M. Dodson, Chicago: We may before long have to go farther than Dr. Abbott has indicated and specifically educate young men for family health officers. Medicine is becoming so specialized that the function of the general practitioner is gradually disappearing, even in the smaller towns. The conscientious practitioner long ago recognized the importance of referring difficult surgical cases—everything except emergency surgical cases—to some special man. What applies to all recognized special lines is becoming equally true of general medicine, that adequate modern care cannot be given to the man ill with acute disease except by men with special facilities and special training, and that leaves the general practitioner with not very much to do. Large industrial organizations, and other types of organizations, are looking to the purely preventive side of the health of their employees, and we may find it necessary to direct our education along different lines, giving students instruction in hygiene and preventive medicine.

Prof. E. O. Jordan, Chicago: The provision for the teaching of hygiene in our medical schools has not only for a long time been inadequate, but is at present lamentably so. Outside of the handful of schools that Dr. Rosenau mentioned, very little provision is made for the teaching of hygiene in our medical schools throughout the United States. We are talking now about introducing a course in military hygiene and sanitation into our medical schools. The first step is to provide in every medical school for a full time man on this subject. That could have been done at any time in the last ten years. We find ourselves now lacking any number of medical men trained in hygiene. One of the speakers has pointed out that for a long time to come we shall have to depend on graduates in medicine for the supervision and control of much of our public health work. These men should receive an adequate outline of training in hygiene.

Dr. Victor G. Heiser, New York: During the past fifteen years I have had working with me graduates from medical schools of the United States, and their woful deficiencies in matters of hygiene and sanitation have been harder to overcome than the apathy of the public with which we have to deal. I am pleased to see that there has been a recognition of the necessity of improving instruction in these lines. During the past few years I have had occasion to visit most of the medical schools in the eastern hemisphere, particularly those of India. Hygiene and sanitation, and much of medicine is far better taught in the average school in India than it is taught in the United States. The facilities and equipment and the ability of the teachers themselves far exceed the average in this country.

The State Regulation of the Practice of Medicine as an Executive Problem

Hon. James M. Cox, Governor of Ohio: Every important calling has to be regulated, and the logical arrangement is regulation by government because the individual citizenship has neither the time nor the agency to work out this regulation. The motive of the medical profession is to conserve the public health. When you establish the motive of the other fellow, you have accomplished nine tenths of the task of analysis.

I know of no physician who ever entered the medical profession prompted by a lust for a million dollars. If he did, he probably did not remain in it long. There is no profession that is making more progress than the medical fraternity, and certainly none that is rendering a greater service to humanity. Members of your profession are apt to get restive because of the difficulties that you encounter in your affairs with the cults, so called. You must remember, and if any of you have had public experience you will know the force of my contention, that we can work things out in this country only by the processes that are given to us by democracy in government. You know in your own minds full well just what sort of statutory provision would best conserve public health, and yet if you were arbitrarily to put it into effect now you might delay your ultimate accomplishment many years. Now, I speak from experience because I was the governor of the state of Ohio, if you will permit a personal reference, immediately after the adoption of a new constitution. I have never felt it was a revoluntionary upheaval in Ohio. I always looked on it as an evolutionary upheaval in authority, and we have had fifty-six varieties of laws in Ohio. I knew they were right and we passed them, but my friends, the populace, had not caught the glimpse, and they gave me a two years' vacation.

You are not going to be enabled to stamp things out that you think are harmful today. But if your concept of things is sound, and I am rather disposed to think that it is, then you can depend first on the intelligence of public opinion, and secondly on the courageous exercise or manifestation of that public opinion. It is singular how many of our citizens in every state inveigh against a standard. It seems to me, that is your great battle. But I urge you to stand by it with all the militancy of a great profession. Do not lower the standard of your profession, regardless of the cults who oppose you.

To the state medical boards and boards of health, there should always be attached men of principle, men of courage, who get a vision of the real ideals that you men are holding to, and then you have the courage not to depart from those ideals. My observation in Ohio has been that in Dr. Matson, for instance, laws are all safe because I have found that the governor of the state can be looked squarely in the eye by Dr. Matson, and if he does not agree with the executive thought he firmly but respectfully says so. Now, I speak of him as a type. Of course, we feel that all things are a little bit better in Ohio, and the nearest approach you make to Ohio standards and ideals, the better.

While the governor has the right of saying what the state medical board does in Ohio, I have never run counter to the recommendation of the medical board. I know that the members of the medical board are devoted to high ideals, and so far as I can give them cooperation and help to maintain those ideals, I shall do it.

I do not know what your experience is in other states, but in the state of Ohio the time has come, and I assume the situation is very much the same with you, for a more rigid supervision of health matters in the rural counties. It is only by the grace of God that half of the population have not died from typhoid fever in communities in which they have open wells and insanitary situations. In Knox County they had a widespread epidemic of typhoid fever. No one was sick save those who took milk from one dairyman. That circumstance made some impression on the imagination and the understanding of that community, and now the health officer has no trouble. There are rural counties in Ohio in which there is no supervision over health matters except that exercised by the state under its police powers. Society was delinquent. We have demonstrated that by the establishment of a branch of government which is more or less new.

The probate courts and juvenile courts in our state have to do with the assignment of delinquent youths to our state institutions. We found at Lancaster, for instance, that boys mentally unsound were put in close contact with boys who were perfectly sound mentally, but who had slipped their foot in some moral way either by virtue of their home association, or of their not having a home worth while. We have changed the law to provide that instead of the probate judge sending these delinquent youths to the institution at Lancaster, to the institution at Delaware or to some other institution, they are sent to the board of administration at Columbus, and are held in surveillance under inspection as long as necessary by the board of administration. How did it work out? They found an ever-ceasing stream of boys and girls with poor eyesight, some of them mentally delinquent, some of them not; some of them suffering from enlarged tonsils, and still others suffering from profound anemia. The board of administration through this newly created department built up these boys, and it was amazing how the crop improved.

Those youngsters were simply plants of humanity that had been reared low in the valley, probably under the stones, and they gained their first glimpses of those elements of nature which are so essential to life itself, and we found that in from thirty to sixty days we changed the whole aspect of things. We found some children, for instance, 10 and 15 years of age who had the mental equipment of children of 5 or 6 years of age. We resorted to the Binet test; then we established the placing out process, finding homes for these children so that they might grow into useful citizens. We found homes for them because there are thousands of homes without children as there are thousands of homeless children. Then we kept our eye on both these children and those homes, making sure, in the first place, the children were making progress, and, in the second instance, that the homes were satisfactory places for the children.

I believe that you should require a physician to have a four year course in a high school, a two year course in a university or college of arts and sciences, a four year course in a reputable medical school, and at least a year's experience in some hospital. We have no fear in our state as to the efficiency of physicians, if that standard is to be maintained. Probably the rapid development of what we designate as cults is due in some instances to the standards that have been established. I will urge on you, for the time being at least, a common sense mental attitude toward the cults, so called, basing that observation on the thought that if they are not going to make a useful contribution to society, then their failure will, in more or less quick time, be recognized by society, and society will help stamp it out.

DISCUSSION

Dr. Thompson, President, University of Ohio, Columbus: We all believe in the fundamental principles of education. Americans believe that education is a panacea for all human ills if you let it work long enough. We are interested in educational administration from the standpoint of the profession. This is particularly true of universities and colleges that have professional schools. I am interested in the legislation of our states bearing on the practice of medicine. A serious problem which presents itself to the educational portion of the community is the administration of these laws. We have to deal fundamentally with the questions which underlie these professions. These questions are chiefly those of applied science. Our institution is interested in the problems with which the board of health must deal. As deans and trustees, we feel it would be well to take a friendly attitude toward any body of men interested in the application of science to human welfare. That is the attitude university presidents and university boards of regents take concerning the larger questions of medicine. The state university and the privately endowed university have for their broad outlook public welfare, and so we are interested in the administration of applied science toward public welfare. That, more than any other reason, is the one that underlies our belief that the medical college should be associated with a university.

Dr. John A. Robison, President of the Illinois State Board of Health, Chicago: In regard to cults, the Illinois law requires that a physician shall have a certain preliminary education, that he shall attend a recognized medical college, and be examined before he can receive a license to practice. The law, however, permits any individual who does not wish to practice regular medicine, but who wishes to practice it in some other form, to submit merely to an examination by the state board of health. He does not have to exhibit any preliminary education, he does not have to be a graduate of a high school or university, nor does he have to attend any particular college of his own cult for training. It is an injustice to the physician that he has to spend so many years and so much time and have to undergo examination before he receives a license to practice. But the injustice is not so much to the physician as it is an injustice to the people of the state of Illinois, in which persons can be licensed by the state to practice on them without the requisite training.

Dr. David A. Strickler, Secretary, Colorado State Board of Medical Examiners, Denver: The laws are safe in the hands of good men. A board is effective only if its members are men of good executive ability. The medical profession should insist that it be represented by men of good executive ability, and to this end should bring influence to bear on those who make the appointments. The public does not have confidence in the purposes of the medical profession that it should have. If a jury is under the impression that the state board of medical examiners is back of a prosecution, it will free the individual in a large percentage of cases, no matter what the evidence against him is with relation to practicing medicine. If it be a question between an ethical physician and an unethical physician, the jury will give the advantage to the unethical physician every time. If it be a question between a layman and ethical physician or an unethical physician, the jury will give the advantage to the layman every time. I speak of this as a practical point in the administration of laws, and I believe it is true in every state. I know it is true in Colorado.

Current Medical Literature

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXXV, No. 3

1 Conservation of Energy in Spinal Anesthesia; Its Value in Weakness of Cardiac Muscle. R. R. Huggins and B. Z. Casleman, Pittsburgh.—p. 353.
2 Organotherapy in Gynecology; Report of Cases. F. B. Block and T. H. Llewellyn, Philadelphia.—p. 357.
3 Relation of Glands of Internal Secretion to Female Pelvic Organs. C. W. Vest, Baltimore.—p. 366.
4 *End Results of Cesarean Section. O. P. Humpstone, Brooklyn.—p. 372.
5 Gynecologic Postoperative Treatment at Long Island College Hospital. C. R. Hyde, Brooklyn.—p. 378.
6 Case of Adenomyoma of Rectovaginal Septum. A. Heineberg, Philadelphia.—p. 384.
7 Imperforate Hymen; Large Serocolpos in Child. S. Wiener, New York.—p. 398.
8 Diffuse Fibromas of Ovary. P. J. Reel, Columbus, Ohio.—p. 400.
9 Cases of Myomectomy in Pregnancy. J. A. McGlinn, Philadelphia.—p. 406.
10 When to Use Curet in Infected Abortions. J. O. Polak, Brooklyn.—p. 409.
11 Treatment of Papillomatous Growths of Ovary After Pozzi Method. C. R. Hyde, Brooklyn.—p. 412.
12 *Tuberculous Glands of Mesentery; Report of Cases. A. T. Jones, Providence, R. I.—p. 417.
13 *Relation of So-Called Ether Pneumonia to Pelvic and Abdominal Surgery. W. E. Darnall, Atlantic City, N. J.—p. 426.
14 Hospital Management. G. K. Dickinson, Jersey City, N. J.—p. 434.
15 Surgeon's Responsibility to Economics of Hospital. E. Marvel, Atlantic City, N. J.—p. 439.
16 Goiter and Pregnancy. A. Crotti, Columbus, Ohio.—p. 450.
17 Postpuerperal Sterility; Its Cause and Surgical Treatment. H. S. Lott, Winston-Salem, N. C.—p. 456.
18 Strangulated Ovarian Cyst Simulating Appendicitis; Report of Cases. E. A. Vander Veer, Albany, N. Y.—p. 459.
19 Digital Rotation in Occipitoposterior Positions of Vertex. G. A. Peck, New Rochelle, N. Y.—p. 463.
20 Premature Separation of Normally Situated Placenta in Latter Months of Pregnancy. L. A. Wing, New York—p. 471.

4. **End Results of Cesarean Section.**—One hundred and forty-eight consecutive cases of abdominal hysterotomy were analyzed by Humpstone. Dystocia due to disproportion is by far the most frequent indication in this report, 109 cases, in three of which prolapse of the funis was also found. Dystocia from the soft parts alone led to cesarean section in several cases. Ventral fixation, intentional or accidental, was the cause for ten operations, and one case of dystocia from a Coffey plication. There was one full term pregnancy after an interposition operation, one case of vaginal stenosis and one of osteoma on the posterior surface of the lateral ramus of the pubes. Three cases of contraction ring with impending rupture of the uterus gave three live babies, from uteri foul with odorous meconium, without serious morbidity to mothers. Ovarian cysts were the causative factor in three cases. Impacted face presentation with the chin posterior and tonic uterus was three times treated in this manner. Accidental hemorrhage led to operation in two cases, one of them in

which the hemorrhage was caused by a bougie employed in an attempt to induce labor. Placenta praevia was found as an indication in only one case. Oversize and overtime children twice afforded an indication. Ten sections were done for eclampsia. The maternal mortality in this whole series was 1.357 per cent. All the babies were born alive. Humpstone believes that abdominal delivery has no greater effect than pelvic delivery on the future health of the mother.

12. **Tuberculous Glands of Mesentery.**—Nine cases, the ages of the patients varying between 5 and 50 years, are reported by Jones. He believes that tuberculous mesenteric glands often occur primary to the true tuberculous type. The bovine type is undoubtedly present in many children without producing symptoms, the glands remaining quiescent, or having a tendency to subside. It is impossible to make a correct diagnosis before operation, as a rule, unless there are palpable glands which may be felt through the abdominal wall, or by the finger in the rectum. Tuberculous mesenteric glands may be present without giving symptoms. There are two clinical types: (*a*) a slightly progressing one generally with palpable glands; (*b*) an acute fulminating type most often simulating and impossible generally to differentiate from appendicitis. Prognosis in subacute stage good without operation. In acute stage exploratory laparotomy should be done, but glands not removed unless definite indications either from adhesions, ulceration or size of mass producing pain or much obstruction. Tuberculous glands of the mesentery may not present any symptoms until breaking down begins in the glands, after which the author gets symptoms of tuberculous peritonitis, intestinal obstruction, or symptoms simulating acute appendicitis. In children and young adults with history of right-sided abdominal pain, with or without palpable masses, inflamed mesenteric glands should always be considered as a possibility.

13. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1325.

American Journal of Roentgenology, New York

February, IV, No. 2

21 Bucky Diaphragm Adapted to Fluoroscopy. H. E. Potter, Chicago. —p. 47.
22 Nature and Origin of Secondary Radiation. J. S. Shearer, Ithaca. —p. 50.
23 Physical Investigation Work in Progress on Tubes and Accessories. W. D. Coolidge, Schenectady.—p. 56.
24 New Developing Formula for Roentgen Ray Plates. V. Aagaard, Battle Creek, Mich.—p. 66.
25 *Pathologic Reasons for Legitimate Error in Roentgen Ray Diagnosis of Gastric Carcinoma and Ulcer. W. C. MacCarty, Rochester, Minn.—p. 67.
26 *Syphilis of Stomach. L. T. Le Wald, New York.—p. 76.
27 *Indications for Surgical Intervention in Gastric Cancer. L. G. Cole, New York.—p. 81.

25, 26 and 27. Abstracted in THE JOURNAL, Nov. 11, 1916, p. 1470.

Arkansas Medical Society Journal, Little Rock

February, XIII, No. 9

28 Metastatic Arthritis. A. G. Lee, Texarkana.—p. 179.
29 Experiences in Cataract Extraction. H. Moulton, Fort Smith.—p. 185.
30 Peritonitis. C. S. Holt, Fort Smith.—p. 189.

Boston Medical and Surgical Journal

February 22, CLXXVI, No. 8

31 Hypertrophic Ileocecal Tuberculosis; Report of Cases. H. Gage and E. L. Hunt, Worcester.—p. 259.
32 Right Colectomy; End Results of Twelve Cases. P. P. Johnson, Beverly.—p. 266.
33 Advantages of Conservative Surgery in Operations for Diverticulitis of Descending and Pelvic Colon. J. W. Keefe, Providence, R. I. —p. 271.
34 Resection of Descending Colon and Rectum. F. H. Lahey, Boston. —p. 275.

Georgia Medical Association Journal, Augusta

February, VI, No. 10

35 Surgical Treatment of Dyspepsia. C. W. Roberts, Atlanta.—p. 195.
36 Treatment of Bronchial Asthma with Autogenous Vaccines. C. W. Findley, Broxton.—p. 198.
37 Salvarsan in Treatment of Syphilis. C. Swanson, Atlanta.—p. 201.
38 Plea for Fuller Recognition of Importance of Psychical Disorders in Medical Practice. W. W. Young, Atlanta.—p. 204.
39 Probable Case of Ovarian Pregnancy. J. I. Garrard, Milledgeville. —p. 206.
40 Comparative Study of Two Cases of Tubal Pregnancy Terminating in Rupture. E. M. Stokes, Moultrie.—p. 208.
41 Hernia. A. D. Little, Thomasville.—p. 209.

Journal of Cutaneous Diseases, Boston

February, XXXV, No. 2

42 Case of Acnitis in Negro. F. C. Knowles, Philadelphia.—p. 61.
43 So-Called White Spot Disease or Sclerodermia Circumscripta. F. Wise and I. Rosen, New York.—p. 66.
44 *Treatment of Acne. R. A. McDonnell, New Haven, Conn. —p. 90.
45 Sclerodactylia with Calcareous Concretions; Report of Case. G. M. Olson, Minneapolis.—p. 96.
46 Pigmented Stripe in Thumb Nail. D. W. Montgomery, San Francisco.—p. 99.

44. **Treatment of Acne.**—That vaccination has run riot in the treatment of acne is McDonnell's opinion. The real cause of acne, he is convinced, is intestinal fermentation. Therefore regulation of the diet is the most important step in the management of acne. The following should never be eaten: breakfast cereals, potatoes, fresh bread, macaroni, apples, bananas and nuts. Everything sweet should be prohibited, including candy, preserves, cake, pie, ice cream, soda water. For two weeks the patient is limited to milk toast, soft boiled eggs, dry toast and soup. After that, the diet list may include soups, fish, meats, vegetables (except potatoes and beans), fruits (except bananas and apples), eggs, toast, salads, tea, coffee and milk. At the beginning of treatment it is highly desirable to have the teeth overhauled by a competent man, and made capable of mastication. Next, the importance of chewing should be drilled into the patient. There are some drugs which are capable, to a limited extent, of holding intestinal fermentation in check. In McDonnell's opinion the best of these is ichthyol. A common prescription with him is, aloin, 0.10, ichthyol, 10.00, a sufficient quantity of licorice powder, to be mixed and divided into thirty capsules, of which one is to be taken after each meal. Other drugs will readily suggest themselves.

Journal of Immunology, Baltimore

February, II, No. 2

47 *Disappearance of Agglutinin from Blood of Anaphylactic and Normal Animals. H. Hempl, Copenhagen.—p. 141.
48 *Specific and Nonspecific Action of Rabbit Blood Serum in Complement Fixation Test. I. F. Huddleson, Ann Arbor, Mich. —p. 147.
49 *Analysis of Anaphylactic and Immune Reactions by Means of Isolated Guinea-Pig Lungs. W. H. Manwaring and Y. Kusama, San Francisco.—p. 157.
50 *Bacteriolytic Power of Normal and Immune Rabbit Serum for Typhoid Bacilli and Influence of Intravenous Injection of Vaccine on Same. O. Teague and H. I. McWilliams, New York.—p. 167.
51 *Experiments with Possible Bearing on Treatment of Typhoid with Typhoid Vaccine Administered Intravenously. O. Teague and H. I. McWilliams, Rosebank, N. Y.—p. 185.
52 *Bacteriolytic Power of Normal Human Serums and Typhoid Patients' Serum for Typhoid Bacilli and an Inquiry into Theoretical Basis for Treatment of Typhoid with Vaccine Administered Intravenously. O. Teague and H. I. McWilliams, Rosebank, N. Y.—p. 193.
53 *Hay-Fever. Nature of Process and of Mechanism of Alleviating Effect of Specific Treatment. R. A. Cooke. E. P. Flood and A. F. Coca, New York.—p. 217.

47. **Disappearance of Agglutinin from Blood.**—To eliminate the question of absorption and to limit the problem to the destruction of agglutinin in a heterologous serum in animals sensitized to that serum, and in normal animals, Hempl made intracardiac, and, in two cases, intravenous injections of an agglutinin so strong that it could be detected in minute quantities. Guinea-pigs sensitized with a very small dose of serum were selected as the experimental animals. Hempl says that individual variation in reaction is so great that experiments in this line of work require statistical control and must be carried out with large numbers of animals to give definite conclusions. In general a foreign serum disappears more quickly from the blood of an animal sensitized to that serum than from that of a normal animal. It disappears more quickly from the blood of highly reacting animals than from that of slightly reacting animals. These experiments corroborate those of Römer and Viereck.

48. **Specific Action of Rabbit Blood Serum.**—The purpose of Huddleson's investigation was to determine whether rabbits would become infected and show *Bact. abortus* antibodies in their blood as a result of ingesting milk reacting positively to the agglutination and complement fixation tests. The results were negative. There is not sufficient evidence to condemn naturally infected milk as dangerous to rabbits by ingestion since it has shown no pathogenic action and no antigenic action. However, a nonspecific absorption of complement takes place in the presence of inactivated rabbit blood serum and a bacterial antigen of *Bact. abortus.*

49. **Analysis of Anaphylactic and Immune Reactions of Isolated Guinea-Pig Lungs.**—The authors' analyses of the anaphylactic and immune reactions by means of perfusion experiments with the isolated guinea-pig lungs show that three essential factors are to be considered: (*a*) cellular hypersensitiveness, or the anaphylactic response of the hypersensitive fixed pulmonary tissues; (*b*) humoral anaphylaxis, or the chemical response (anaphylatoxin formation) of the anaphylactic blood, and (*c*) humoral immunity, or the inhibiting or protecting action of the immune blood. In the 14-day anaphylactic guinea-pig, the fatal bronchial spasm is due, in part to fixed cellular hypersensitiveness, in part to humoral anaphylaxis. In the 4-week anaphylactic guinea-pig, the fixed cellular hypersensitiveness is usually greater than that of the 14-day anaphylactic guinea-pig. The humoral reaction, however, is usually absent. The fatal bronchial spasm in the 4-week anaphylactic guinea-pig is usually due solely to fixed cellular hypersensitiveness. The immune guinea-pig usually shows a fixed cellular hypersensitiveness greater than that of the 14-day anaphylactic guinea-pig. A fatal bronchial spasm is prevented in the immune guinea-pig, however, by the inhibiting or protecting action of the immune blood. The immune guinea-pig, therefore, shows a seemingly paradoxical phenomenon, the coexistence of a fixed cellular hypersensitiveness and a humoral immunity.

50. **Bacteriolytic Power of Rabbit Serum for Typhoid.**—The work of Buxton and others showing that normal rabbit serum is capable of killing large numbers of typhoid and paratyphoid bacilli, and that the serums of rabbits highly immunized against typhoid and paratyphoid bacilli do not kill these organisms, is confirmed by Teague and McWilliams; it is emphasized, therefore, that the titer of an immune serum as determined by the usual dilution method, with the addition of complement, is not an indication of the bactericidal power of the blood plasma *in vivo.* The bacteriolytic power of normal and highly immune antityphoid rabbit serum for typhoid bacilli is neither increased nor decreased by the intravenous injection of a large dose of typhoid bacilli; the serum of a rabbit that has received only one or two immunizing injections shows a distinct, but not a great, increase in its bactericidal power at five and twenty-four-hour intervals after such an injection.

51. **Typhoid Vaccine Administered Intravenously.**—The experiments reported on by Teague and McWilliams were planned to determine whether a rabbit that had received a dose of typhoid vaccine twenty-four hours previously was more resistant to a large dose of typhoid bacilli than a normal control rabbit. The result was confirmative. Therefore the authors point out a possible relationship between the phenomenon and the cure of typhoid by means of the intravenous injection of typhoid vaccine, without attempting to set up any hypothesis as to the mechanism of the process.

52. **Bacteriolytic Power of Normal Human Serums.**—The authors believe that typhoid is a local disease and not a septicemia; therefore the curative process must take place at the site of the local lesions. In almost all cases of typhoid the serum is strongly bacteriolytic for typhoid bacilli throughout the disease; it would seem that the bacteria multiply in certain tissues because the tissue fluid or lymph does not possess this property. If the intravenous injection of vaccine should cause a more active passage of bacteriolytic substances from the blood capillaries, into the lymph, the destruction of the typhoid bacilli and healing of the local lesions should be effected. This is the hypothesis the authors suggest.

53. **Hay-Fever.**—The available facts, clinical and experimental, relating to hay-fever form the basis of the authors' conception of that and all other forms of natural human sensitization: (1) Hay-fever is the clinical symptomatic expression of local hypersensitiveness. The active pollen substances are not toxins; (2) the hypersensitiveness is established spontaneously and never by immunologic process. This has been shown in two ways; first, by the observation that individuals may be sensitive to pollens of plants that are indigenous in foreign countries and with which they have never come in contact; and second, by the observation that individuals who are naturally sensitive to one protein only cannot be artificially sensitized to another protein, either animal or vegetable; (3) the sensitization is not directly inherited, although the tendency to spontaneous sensitization is inherited as a dominant character; (4) the antibody-like substances of human sensitization are not demonstrable in the blood of sensitive persons by any of the immunity reactions. They are present in the cells of the sensitive tissues. They cannot be increased artificially by the usual process of immunization; (5) the mechanism of the alleviating effect of specific, that is, vaccine therapy, is the same as that of desensitization in experimental anaphylaxis. The freedom from symptoms lasts as long as the respective "antigenic" substances remain in combination with the antibody-like substances in the tissues.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, IX, No. 5

54 *Salicylates. V. Excretion of Salicyl in Urines of Rheumatic and Nonrheumatic Individuals. P. J. Hanzlik, R. W. Scott and T. W. Thoburn, Cleveland.—p. 247.

55 *Fate of Iodin, Iodids and Iodates in the Body. T. Sollmann, Cleveland.—p. 269.

54. **Excretion of Salicyl in Urine.**—The object of this contribution is to compare the quantitative excretion of salicyl in rheumatic and nonrheumatic, or practically normal, subjects. This was intended to show whether the therapeutic effects of salicylate could be based on differences in the retention or "affinity" of the normal and rheumatic organism for salicyl. The total excretion of salicyl is about 15 per cent. less in rheumatic than normal individuals. This difference is greatest in the early periods after the administration of the drug; that is, during the first ten to twenty hours. The concentration of salicyl in the blood of rheumatic individuals at "toxicity" is less, and the concentration in the urine at this time is also less than in normal individuals. These differences are not due to diuresis; nor to retention and vicarious excretion of the salicyl. They seem to be due to an increased destruction of the salicyl in the febrile rheumatic organism. A lessened excretion of salicyl was demonstrated in a number of individuals representing such conditions as chronic alcoholism and morphinism, tuberculosis and diminished renal functional efficiency as compared with normal individuals. The administration of sodium bicarbonate together with the salicylate has practically no effect on the excretion of salicyl in the urine, or its "toxic" effects.

55. **Fate of Iodin in the Body.**—An investigation was planned by Sollmann to determine (1) whether the administration of elementary iodin can result in the appearance of iodid and iodate in the blood or tissues; and (2), whether elementary iodin can be liberated from iodid and iodate, combined or separately, with the reaction (hydrogen ion concentration) that is known to exist in the body. He found that large doses of free iodin, administered by the stomach, exist in the blood solely as iodid. The addition of acid to the blood does not regenerate iodin. No iodin is liberated from iodid-iodate or iodid-nitrate or iodate-sulphocyanid mixtures, until the acidity surpasses Hp-4. It is therefore impossible that iodin should be liberated from iodid under any conditions existing in the body (excepting solely the gastric juice). On the other hand, the alkalinity of the body is not sufficient to bind any noticeable quantity of free iodin—even in the absence of proteins and aromatic groups. The questions that were proposed are therefore answered in the negative: (1) the blood, after the administration of free iodin, does not liberate

iodin on acidulation, because the iodin is bound through the protein, and not through the alkali; (2) free iodin cannot be liberated in the body, since all the conceivable reactions for the liberation of iodin from its compounds require much higher hydrogen ion concentrations than exist anywhere in the body.

Journal of Urology, Baltimore

February, I, No. 1

56 *Studies on Growth of Cells. Cultivation of Bladder and Prostatic Tumors Outside the Body. M. T. Burrows, J. E. Burns and Y. Suzuki, Baltimore.—p. 3.
57 *Double Ureter and Kidney, with Calculous Pyonephrosis of One Half; Cure by Resection. Embryology and Surgery of Double Ureter and Kidney. H. H. Young and E. G. Davis, Baltimore.—p. 17.
58 *Bacteriology and Microscopy of Contents of Seminal Vesicles; Postmortem Study of Fifty-Two Cases. B. A. Thomas and F. G. Harrison, Philadelphia.—p. 59.
59 Relation of Nonprotein Nitrogen to Urea Nitrogen of Blood. H. O. Mosenthal and A. Hiller, Baltimore.—p. 75.
60 *Advantages of Pyelotomy Drainage for Nephrotomy Wounds. E. L. Keyes, Jr., New York.—p. 91.
61 *Physiology of Ureter and Vas Deferens. D. I. Macht, Baltimore.—p. 97.
62 *Effect of Calcium, Water and Other Substances Given Intravenously on Blood Composition and Urine Secretion. D. M. Davis, Baltimore.—p. 113.
63 Modified Woodyatt Pump. D. M. Davis and W. S. Gorton. Baltimore.—p. 135.

56. **Cultivation of Bladder and Prostatic Tumors.**—The authors studied the cultures of twelve tumors of the bladder and the prostate. Seven were clinically malignant bladder papillomas; one, a benign bladder tumor; two benign hypertrophy of the prostate, and two prostatic tumors, each of which showed one portion of typically benign hypertrophy, the other part having undergone a carcinomatous change. Besides these, one series of cultures of normal bladder epithelium was also tested. The culture medium consisted of the patient's blood plasma, normal blood plasma, agar and isotonic sodium chlorid. Of the seven malignant bladder tumors cultivated, one only failed to show cellular activity in the first twenty hours. This tumor had been removed after the application of a strong solution of cocain. The cultures of the benign tumor, on the other hand, have shown no cellular activity either in the first or the second transplants. All of the cultures of the bladder tumors were infected with bacteria. However, previous to the time that the bacteria became very numerous the tumor cells showed activity except in two instances.

57. **Double Ureter and Kidney.**—The case reported by Young and Davis is unique in that it is the only such case to be found fully reported in the literature. The condition of double kidney and ureter is not rare, and the upper half is most often the seat of disease; its surgical importance is therefore great. The advent of ureteral catheterization, roentgenography and pyelography has made the diagnosis easy. The radical cure by excision of the diseased half of the kidney with its pelvis and ureter is undoubtedly the method of choice.

58. **Contents of Seminal Vesicles.**—A postmortem examination of the seminal vesicles of fifty-two human male cadavers was made by Thomas and Harrison. They found that the seminal vesicles harbor spermatozoa after death, and therefore presumably during life. This function is exercised in the presence of inflammation (spermatocystitis), although in a large percentage of inflammatory cases no spermatozoa can be found (postmortem). The determination of the viability of the zoosperm in the presence of seminal vesiculitis, the exact identification, classification and relative frequency of the invading bacteria, particularly with reference to gonorrhea, are questions impossible of solution by postmortem investigation, and will constitute a secondary and final report after bacteriologic and microscopic study conducted in conjunction with seminal vesiculotomy on the living subject.

60. **Drainage for Nephrotomy Wounds.**—During the past six months Keyes has opened the kidney parenchyma three times for the extraction of stone, and then deliberately inserted a probe into the kidney pelvis, and on this opened the pelvis widely, inserted a rubber tube there for drainage, and closed the parenchyma by suture. Each one of these cases has healed with the promptness characteristic of a pyelotomy; one of them with surprising promptness, for the wound became gravely infected with staphylococci from the kidney, and nevertheless all trace of urine coming from it disappeared within eight days, though the wound has been about four weeks in healing. It seems, therefore, possible, not only that pyelotomy is to be preferred to nephrotomy for extraction of stone, etc., when this is possible, but that when nephrotomy is done it may seem wiser to suture the incision in the kidney parenchyma and to drain through a counterincision made in the kidney pelvis.

61. **Physiology of Ureter and Vas Deferens.**—The behavior of the ureter and vas deferens was studied, by Macht first, on surviving excised organs, second, by observations of those organs in situ, in the living body, and third on excised human ureters and vasa deferentia after operation. He found that the isolated ureter contracts best in a slightly acid medium; the isolated vas contracts best in a slightly alkaline medium. This corresponds to the natural conditions in the body. A rise in temperature at first stimulates and subsequently paralyzes the contractions of the ureter and vas. A fall in temperature inhibits the contractions. Adequate oxygenation is essential for the maintenance of the contractions of the ureter and vas deferens in vitro. The response of the ureter and vas to epinephrin and ergotoxin is an evidence of their innervation by the dorsal lumbar or true sympathetic nervous system. The response of the ureter and vas to pilocarpin, physostigmin, muscarin, cholin and atropin is an evidence of their being also innervated by the sacral autonomic or parasympathetic nervous system. The response of the ureter and vas to nicotin points to the presence of ganglion cells in the walls of those organs.

62. **Changes in Blood Composition and Urine Secretion.**—Injections of fluid of considerable size were made intravenously by Davis in dogs, according to three methods, without producing diuresis. He suggests that in such cases definite hydremia and definite hyperglycemia may be present without diuresis. In cases in which hydremia occurs without diuresis, there has usually been a definite decrease in the molecular concentration of the plasma, as shown by the depression of the freezing point(Δ). Solutions of calcium chlorid given intravenously cause the urinary secretion to diminish, and, in addition, precipitate a great loss of water from the blood to the tissues. Given with sodium chlorid, calcium chlorid will antagonize the diuretic effect of sodium chlorid. In such a case, the general blood pressure is not changed.

Medical Record, New York

February 24, XCI, No. 8

64 Question of Operation for Suspected Perforation in Typhoid. J. S. Thacher, New York.—p. 311.
65 Heredity; in Its Relation to Psychopathy and Clinical Psychology. J. V. Haberman, New York.—p. 313.
66 Appendix Dyspepsia. C. A. McWilliams, New York.—p. 323.
67 As Rabelais Saw Rosacea. D. W. Montgomery, San Francisco.—p. 325.
68 Psychology Attending on Senescence in Some Scientists. J. A. Hagemann, Pittsburgh.—p. 327.
69 Barber's Itch. O. L. Levin, New York.—p. 328.

Nebraska State Medical Journal, Norfolk

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70 Mouth Infections in Systemic and Remote Disease; Report of Cases. A. D. Dunn, Omaha.—p. 223.
71 Blood Chemistry in Constitutional Diseases. M. J. Breuer, Lincoln.—p. 227.
72 Study of Intrathoracic Lymph Adenitis in Children, with Special Reference to Signs and Roentgen Ray Findings. W. O. Colburn, Lincoln.—p. 232.
73 Management of Corneal Injuries. F. F. Teal, Lincoln.—p. 234.
74 Value of Roentgenography in Focal Infections About Teeth. C. H. Ballard, Omaha.—p. 239.
75 Treatment of Malignant Conditions with Roentgen Ray. A. P. Overgaard, Omaha.—p. 241.
76 Resection of Duodenopyloric Region for Extensive Ulceration. H. W. Wightman, Omaha.—p. 243.

New Jersey Medical Society Journal, Orange

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77 Metabolism, Arteriosclerosis and Diet. L. F. Bishop, New York.—p. 49.

78 Acute Conditions of Abdomen in Child. L. M. Kahn, New York.—p. 53.

79 Eugenics—Sanitary Aspects. H. Brooks, New York.—p. 57.

80 Eugenics from Professional Standpoint. H. H. Goddard, Vineland.—p. 62.

New York Medical Journal

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81 Responsibilities and Dangers of Medical Practice Among Primitive Men. J. Wright, Pleasantville.—p. 337.

82 Use of Ethylhydrocuprein in Diseases of Eye. W. Zentmayer, Philadelphia.—p. 342.

83 Research in Epilepsy. H. A. Knox, Bayonne, N. J.—p. 344. To be concluded.

84 Is Gastric Secretion Altered in Gallbladder Disease? M. G. Wohl, Omaha.—p. 347.

85 Radical Treatment of Pott's Paraplegia by Albee Bone Graft. P. Le Breton, Buffalo.—p. 350.

86 Primary Myopathies. S. Naccarati, New York.—p. 351.

87 Surgical Control of Carbohydrate Tolerance; Report of Two Cases. J. C. O'Day, Portland, Ore.—p. 353.

88 Guarding Portals of Entry. F. W. Bock, Rochester.—p. 355.

89 Interperitoneal Adhesions and Their Prevention. G. Gellhorn, St. Louis.—p. 358.

Ophthalmology, Seattle

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90 Old and New Cataract Operation. M. Corry and H. Shanker, Delhi, India.—p. 169.

91 Treatment and Prognosis of Chronic Glaucoma. A. A. Bradburne, Manchester, England.—p. 204.

92 Method for Ligation of Ophthalmic Vein for Exophthalmos; Report of Case. F. Krauss, Philadelphia.—p. 215.

93 Practice of Ophthalmology in Washington, D. C. J. Santos-Fernandez, Havana, Cuba.—p. 221.

94 Tuberculosis of Retinal Vessels. F. R. Spencer, Boulder, Colo.—p. 225.

95 Prevention of Infection of Cornea. L. Ostrom, Rock Island, Ill.—p. 238.

96 State Legislation Concerning Optometry. F. Allport, Chicago.—p. 247.

South Carolina Medical Association Journal, Greenville

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99 Nephritis—Why Phenolsulphonephthalein? N. B. Edgerton, Columbia.—p. 444.

100 Two Cases of Sudden Death Associated with Enlargement of Thymus, Occurring in Same Family. A. M. Brailsford, Mullins.—p. 447.

101 Conquering Medicine and Surgery. R. T. Ferguson, Gaffney.—p. 449.

102 Eye of Pregnant Woman. C. W. Kollock, Charleston.—p. 452.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

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104 Pneumonia. E. G. Epler, Fort Smith, Ark.—p. 14.

105 Treatment of Prostatitis. W. J. Wallace, Oklahoma City.—p. 30.

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106 Study of Causes Underlying Renal and Ureteral Disease in Prostatic Hypertrophy. H. Reed, Oklahoma City.—p. 33.

107 Streptococcus Infection of Throat; Edema of Larynx; Tracheotomy Under Difficulties; Other Complications; Recovery. E. S. Connell.—p. 42.

108 Tuberculosis of Hip Joint. W. D. McVicker, Wichita, Kan.—p. 49.

109 Salvarsan in Aural Therapy. L. H. Lanier, Texarkana, Ark.—p. 52.

110 Unusual Case of Iridocyclitis. R. H. T. Mann, Texarkana, Ark.—p. 55.

111 Ophthalmia Neonatorum. W. A. Cook, Tulsa.—p. 55.

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112 Carrel Method of Wound Sterilization. W. O. Sherman, Pittsburgh.—p. 255.

113 *Indications for Cholecystectomy. F. B. Lund, Boston.—p. 275.

114 Relative Merits of Cholecystostomy and Cholecystectomy. C. H. Mayo, Rochester, Minn.—p. 281.

115 *Cholecystostomy vs. Cholecystectomy. J. B. Deaver, Pittsburgh.—p. 284.

116 *Familial Fibromyxomas of Peripheral Nerves; Report of Three Cases. [illegible] N. Fleming and F. W. Marvin, Boston.—p. 287.

117 Incontinence of Urine in Women. H. C. Taylor and C. H. Watt, New York.—[illegible]96.

118 Etiology and Treatment of Varicose Ulcers of Leg. J. Homans, Boston.—p. 300.

119 Anencephaly Successfully Diagnosed Roentgenographically Before Birth. J. T. Case, Battle Creek, Mich.—p. 312.

120 Advanced Extra-Uterine Pregnancy with Living Child; Primary Laparotomy. W. G. Lee, Chicago.—p. 317.

121 Chronic Hemogenic Salpingitis; Report of Case. W. C. Danforth, Evanston, Ill.—p. 327.

122 Abdominal Myomectomy and Hysteromyomectomy by Morcellation. Report of Cases. C. G. Child, Jr., New York.—p. 329.

123 Sarcoma of Prostate; Report of Cases. F. J. Parmenter, Buffalo.—p. 336.

124 *Variations in Blood Supply of Ovary and Their Possible Operative Importance. J. A. Sampson, Albany, N. Y.—p. 339.

125 *Chronic Gastric and Duodenal Ulcer; Report of Cases. R. C. Coffey, Portland, Ore.—p. 350.

126 Modern Treatment of Club-Foot. R. J. Behan, Pittsburgh.—p. 356.

127 Air in Ventricles of Brain, Following Fracture of Skull. W. H. Luckett, New York.—p. 362.

128 *Compound Fracture of Skull with Loss of Nearly Half of Frontal Bone, and Parts of Left Frontal Lobe of Brain; Recovery. U. S. Kann, New York.—p. 364.

129 Telephone as Used for Localization and Removal of Metallic Foreign Bodies in Tissues. K. Bulkley, New York.—p. 366.

130 Rectal Anesthesia by Means of Ether; Report of Cases. J. B. M. y Flórez, Colombia, S. A.—p. 370.

131 *Closing Skin in Abdominal Incisions. C. S. White, Washington, D. C.—p. 373.

132 New Method of Turning Down Bone Flaps on Skull. R. E. Farr, Minneapolis.—p. 374.

133 *Simple and Efficient Preparation of Field of Operation. G. S. Foster, Manchester, N. H.—p. 375.

134 Ectopic Pregnancy Following Ligature and Section of Fallopian Tubes. J. C. Wood, Cleveland.—p. 376.

113. **Indications for Cholecystectomy.**—Lund maintains that the gallbladder should be removed under the following conditions: 1. In cases of very thick, acutely inflamed, bright red or gangrenous gallbladders due to impaction of a stone in the cystic duct. 2. In cases of chronically thickened gallbladders. 3. In cases of gallbladders very much distended with clear fluid from impaction of a stone in the cystic duct. 4. Whenever suspicion exists of malignant disease. 5. In chronic cholecystitis without stones, but with moderate thickening and ulceration of the mucous membrane, giving little yellow spots on the mucous surfaces, the so-called "strawberry gallbladder." 6. In chronic cholecystitis without stones but with adhesions to the surrounding organs, especially the pylorus, which cripple the latter and cause symptoms. 7. Cancer of the gallbladder. 8. All cases of gallstones in which the operation is not for any reason unusually difficult or dangerous. 9. All cases of cholecystitis without stones where the same conditions exist.

115. **Cholecystostomy vs. Cholecystectomy.**—Deaver's position speaking generally, is as follows: Cholecystectomy is preferable in the hands of the master of biliary surgery, since the mortality is but little higher in selected cases and the percentage of cures of the infection of the tract is greater. Cholecystostomy is slightly safer, is in many cases an eminently successful operation, and the surgeon may always reflect that two operations on a living patient are better than one on a dead one. He should remember also that prolonged drainage is the secret of sterilization of the biliary tract and by this means may convert unsuccessful cholecystectomies into successful ones. Cholecystectomy in the presence of jaundice and in the absence of a markedly and macroscopically diseased gallbladder is, in Deaver's judgment, out of place. Under these conditions cholecystostomy is the operation of choice. Jaundice in the absence of inflammation and obstruction of the common duct is most probably due to cholangitis, which calls for drainge. Drainage by way of the gallbladder is much more simply made than is drainage by the common duct. Further, the less the common duct is interfered with the better.

116. **Familial Fibromyxomas of Peripheral Nerves.**—The matter of chief interest in these three cases of multiple peripheral nerve tumors lies in the fact that they have occurred in members of the same family, a sister and two brothers. It would appear, moreover, that the tendency among the members of this family to these isolated tumors bears a definite relation to trauma. At least, in two cases the fact that a direct injury of unusual severity, occurring in the same situation was followed in each instance by a sciatic tumor, would seem to be more than a coincidence.

124. Abstracted in The Journal, June 17, 1916, p. 2033.

125. **Chronic Gastric and Duodenal Ulcer.**—As a result of a careful study of this subject, Coffey says that his practice in the future will be as follows: All duodenal ulcers will be

covered over by omentum, and a posterior gastro-enterostomy by the Mayo or Moynihan technic performed, without artificial obstruction. Or, in certain cases, it is convenient to excise an ulcer near the pylorus combined with a Finney pyloroplasty. Gastric ulcers on the lesser curvature, which are small and indurated, will be treated by the Balfour cautery plus the Finney pyloroplasty, or gastro-enterostomy. Large ulcers in other parts of the stomach will be treated by first doing a gastro-enterostomy, or a Finney pyloroplasty, followed by Sippy's plan of medical treatment, with a resection later, if necessary. Ulcers involving a very large area of the wall of the stomach may be given rest and the patient nourished by jejunostomy. Ulcers near the pylorus, having a suspicion of cancer, will be treated by the Rodman operation done in two stages.

128. **Compound Fracture of Skull.**—Kann's patient was struck on the forehead by the blade of a powerful electric fan. The frontal bone was cut just above the supra-orbital margin a little more on the right side and broke in two pieces at the crest of the attachment of the falx cerebri. The pieces of frontal bone missing measured 8 by 10 cm. The mental status of the patient is given as follows: The chief characteristics appear to be a marked indifference, with lack of spontaneity, defective memory for the period following the accident, but with excellent memory for the remote past; defective calculation, judgment poor and insight absent. No delusions, illusions or hallucinations. Orientation for time, place and person correct.

131. **Closing Skin in Abdominal Incisions.**—The suture which White has found quite satisfactory is one which he terms a continuous vertical mattress. The material usually employed is No. 00 or No. 000 chromic catgut, though fine silk or linen under some conditions is preferable; any needle of small diameter, straight or curved, may be used, this being a matter of personal choice. The suture should have a knot or small loop tied in the long end, or fixed by a split knot and begun by taking a deep suture to include the entire thickness of the skin, from one side of the incision to the opposite, about 1 cm. from the edge. The needle is then reversed in the holder, and the suture passed obliquely toward the other side, or the side on which the suture was started, barely engaging the edges of the wound. The needle is then introduced a trifle lower, on the side on which it originally entered, 1 cm. from the edge and the first deep suture is repeated. These deep and superficial sutures are continued until the wound is closed, drawing up the thread gently as each suture is completed.

133. **Simple Preparation of Field of Operation.**—The evening before the operation Foster has the field carefully shaved and well sudsed. It is then rinsed with sterile water and carefully dried with sterile towels, after which it is covered with dry sterile gauze and a binder applied to keep the gauze in place. This is all the preparation made before taking the patient to the operating room. On the operating table, when the patient is yet but semi-anesthetized, the field of operation is made bare and all covering is walled off with carefully placed sterile towels. The dry field of operation is then carefully and thoroughly bathed with gasoline. The gasoline coat is wiped off very thoroughly with sterile gauze, and the entire field is then carefully bathed with 70 per cent. alcohol which is allowed to remain without being dried. The field is now ready for operation.

Texas State Journal of Medicine, Fort Worth

February, XII, No. 10

135 Hemorrhagic Tendency in Obstructive Jaundice and Its Preoperative Treatment. F. W. Aves, Galveston.—p. 382.
136 Diseases of Accessory Nasal Cavities. M. E. Taber, Dallas.—p. 386.
137 Complications of Accessory Sinus Disease. W. P. Breath, Galveston.—p. 387
138 Diagnosis of Nasal Accessory Sinus Disease. J. H. Foster, Houston.—p. 389.
139 Blood Clot Method of Treating Mastoiditis. W. R. Thompson, Fort Worth.—p. 392.
140 Glass Sphere Implantation. W. Ralston, Houston.—p. 394.
141 Enucleation of Eye Followed by Fat Implantation. J. W. Head, Fort Worth.—p. 395.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 3, I, No. 2927

1 *Influence of Antiseptics on Activities of Leukocytes and Healing of Wounds. C. J. Bond.—p. 145.
2 Diseases of Male Urethra. F. S. Kidd.—p. 148.
3 Salvarsan Treatment of Syphilis: Analysis of Two Hundred Cases. L. Jones and A. J. Gibson.—p. 152.
4 *Simple Dietetic Treatment in Diabetes Mellitus. R. T. Williamson.—p. 154.

1. **Influence of Antiseptics on Leukocytes.**—Certain facts about the iodin reaction in leukocytes and other cells, Bond believes, have an important bearing on phagocytosis and immunity. Even in health a large proportion of the white blood corpuscles normally give, under certain conditions, a color reaction with iodin, which is closely related to, if not identical with, the so-called glycogen reaction met with in the same cells in disease. The reaction Bond describes occurs not only in the white blood cells, but in many pus cells, in some of the cellular elements of granulation tissue, in some marrow cells, and in the cells of certain cancerous tumors. The cells which gave the mauve reaction are the finely granular polymorphonuclear leukocytes. The large mononuclears and the small lymphocytes do not usually give the reaction, and Bond has not detected it in the eosinophil cells. A considerable proportion of pus cells from a healthy granulating wound will show the characteristic mauve reaction. Pus aspirated from an empyema or an acutely infected knee joint may fail to give the reaction when first withdrawn, whereas, if the discharge which flows freely from the empyema or the joint cavity be examined a few days later, after efficient drainage has been established, quite a number of the cells will show the mauve colored exudation. The capacity to give the iodin mauve color reaction depends largely on the vitality of the pus cell, and pus cells which have lain for some time in a closed cavity in a tryptic medium, have undergone partial cytolysis. It is the living leukocyte which has recently emigrated from its natural environment—the blood or lymph stream—which shows the reaction. This fact must be borne in mind in making use of the reaction as an indication of the healthiness of a wound. On the whole, efficient drainage and the establishment of a flow of rapidly renewed phagocytes seems to have more influence on the iodin reaction than the nature of the solutions used in the treatment of the wound. The iodin reaction is not confined to the cells of the purulent discharge. If a small portion of healthy granulation tissue be removed from a wound and examined in salt solution while alive, and a 1 per cent. watery iodin solution be added, a considerable number of the cellular elements will show the mauve colored exudation. If a small piece of healthy red marrow be examined in 1 per cent. watery iodin solution a considerable number of the marrow cells will show the mauve colored reaction.

Bond thinks there can be little doubt that the substance which gives the mauve colored reaction with iodin in the white blood cells in health is either glycogen or a precursor of glycogen, possibly a complex substance, from which, as the result of emigration, the carbohydrate molecule may be concerned with the elaboration of ferments or antibodies formed by the phagocytes in response to a toxin. Cancer cells from some actively growing cancers give the mauve reaction when examined fresh in salt solution and iodin; they also (like some pus cells) give the mahogany reaction when treated with iodin vapor. The iodophil substance in leukocytes is not destroyed by foreign serum and the iodophil substance may be present in leukocytes in an infected area though absent in leukocytes drawn from the general circulation. A personal observation made by Bond shows the intimate association between the circulation of bacillary toxins and the occurrence of iodophilia in the leukocytes. It also shows the phases of increased formation of iodophil substance by the phagocytes—first the increase in the extracellular soluble mauve colored exudation, then the occurrence of the less soluble intracellular mahogany colored deposit.

Both these occur before any corresponding change can be detected in the leukocytes in the general blood stream, and they are still present in the incubated leukocytes for some time after the constitutional reaction to the infection has disappeared. This shows the close association which exists between leukocytic activity in response to infection and the formation of an iodophil substance by the phagocytes.

4. **Dietetic Treatment of Diabetes.**—The treatment employed by Williamson lasts for a week or ten days only; during this period the patient ceases work and rests. Every two hours from 8 a. m. to 10 p. m. he receives a small amount of food—eggs, cream, milk, beef tea and tea according to the following diet sheet: 8 a. m. coffee or tea, with one tablespoonful of cream. One egg (poached, boiled or buttered); 10 a. m., a glass of warm milk (half a pint); 12 noon, custard (prepared from one egg and half a pint of milk); 2 p. m., a glass of warm milk (half a pint); 4 p. m., tea, with one tablespoonful of cream. One egg (poached, boiled or buttered); 6 p. m., cream, two tablespoonfuls in half a pint of warm beef tea; 8 p. m., a glass of warm milk, or one egg beaten up and added to half a pint of warm beef tea; 10 p. m., cream, two tablespoonfuls in half a pint of warm beef tea. The order of these meals may be varied or slightly modified as the patient desires. The patient takes no other food. The bowels are kept regular. Williamson claims that in many cases the glycosuria ceases in a few days, in other cases in a week or ten days, although an ordinary rigid diabetic diet had failed to check the sugar excretion.

Edinburgh Medical Journal

February, XVIII, No. 2

5 *Comparison of Some Antiseptics in Respect to Their Diffusibility, Action on Leukocytes and Action on Ferment Activity. H. E. Magee.—p. 86.
6 Etiology of Disseminated Sclerosis. B. Bramwell.—p. 96.
7 War Injuries of Ear. J. S. Fraser.—p. 107.
8 Case of Idiopathic Dislocation of Eyeball. D. M. Greig.—p. 129.

5. **Comparison of Some Antiseptics.**—In order to demonstrate wherein antiseptic solutions differ from each other, a comparative study was made by Magee of some of the commoner bactericidal agents in regard to diffusibility, chemiotactic action, and action on ferment activity. To prevent ferment activity of any kind in an infected wound is the most important indication. Chinosol was by far the most diffusible substance dealt with, and tincture of iodin the least. Thymol and potassium iodid occupy first place as positive chemiotactic substances. Salicylic acid and low concentrations of sodium bicarbonate have a much less marked effect. Dakin's solution, phenol, sodium fluorid and fairly strong solutions of acetic acid are decidedly negative chemiotactic substances, while quinin and weak acetic acid have a much less pronounced action. Chinosol, physiologic saline solution, camphor, strong solutions of sodium bicarbonate, have only a slight influence on the white corpuscles. Antiferment chemical substances fall into two main groups: (1) protein precipitants; (2) true antiferments. The members of the former group inhibit ferment activity in three ways: (*a*) by removal of the ferment by precipitation; (*b*) by a direct antiferment action; (*c*) by combining with the substrate. As the result of the ferment action, amino-acids and the antiseptics are set free. Quinin and chinosol not being protein precipitants, must be placed in the second group. They stop tryptic action in low concentrations. Magee is of the opinion that it is safe to assume that their action is specific in nature.

Practitioner, London

February, XCVIII, No. 2

9 *Intrathoracic Aneurysm; Report of Cases. W. J. Fenton.—p. 101.
10 *Epidemic Nephritis. W. L. Brown.—p. 111.
11 Sudden Death. B. H. Spilsbury.—p. 132.
12 Eczematoid Ringworm of Hands, Feet and Groin. J. M. H. Macleod.—p. 146.
13 Uses of Some Electric Methods in War Injuries E. L. Ash.—p. 155.
14 Treatment of Cough. A. Stewart.—p. 159.
15 Parodontal Disease. J. E. Blomfield.—p. 165.
16 Severe Case of Tetanus Treated with Repeated Intrathecal Injections of Antitoxin; Recovery. C. Worster-Drought.—p. 182.
17 Excision vs. Amputation in Certain Cases of Sarcomas of Long Bones. P. J. Byrne.—p. 189.

9. **Intrathoracic Aneurysm.**—The history of three cases is cited by Fenton. All three patients were about 48 years of age. The first man dated his symptoms from lifting heavy casks, five years ago. Shortly afterward he began to get short of breath, and developed a cough. The second patient, likewise, was accustomed to lift weights, the third was a general laborer. All three have had syphilis, the first two admit infection, and have a positive Wassermann reaction; but the third denies having had syphilis, though he admits gonorrhea twenty years ago. In this case, the Wassermann was positive likewise. In these three patients, the common etiologic factor was specific infection and occupational stress.

10. **Epidemic Nephritis.**—Up till the end of June, 1915, 1,062 cases of epidemic nephritis had occurred in the British army. Brown has made a careful study and analysis of 166 cases. As to etiology, he believes that this epidemic has disposed of the tradition that exposure is a very important cause of nephritis. While the troops were enduring much cold and exposure there were but few cases of nephritis; it was not until the weather was better that the disease assumed epidemic proportions and the cases continued to increase into the summer. The water supply did not appear to play any rôle, neither did the lead used in the tinning of foods or diet. Other suggested causes such as suppressed scarlet fever, dysentery and typhoid, exacerbation of chronic nephritis, antityphoid inoculation and trench fever are also disregarded. Brown favors the infection theory, which, he says, easily accounts for the pathology and the clinical course. Investigations were next made as to infection by an ultramicroscopic filter passer. A definite illness was produced in rabbits and monkeys after an incubation period of eight days by injections of urine prepared so as to be free from bacteria, but containing any filter passer present. The relative frequency of different symptoms was as follows: edema, 97 per cent.; headache, 77 per cent.; dyspnea, 76 per cent.; pains in the back, 60 per cent.; cough, 51 per cent.; sore throat, 27 per cent.; vomiting, 24 per cent.; retinal changes, 18 per cent.; diarrhea, 16 per cent.; nausea, 12 per cent., and fits, 4 per cent. Other symptoms which have occasionally been observed are herpes and parotitis, both of which suggest an infective origin.

Archives des Maladies du Cœur, etc., Paris

January, X, I, pp. 1-48

18 *Disturbances in Lungs and Pleura in the Course of Heart Disease. (Formes cliniques des accidents pleuropolmonaires chez les cardiaques.) H. Vaquez.—p. 1.
19 Unilateral Paradoxic Pulse with Subclavian Arteriovenous Aneurysm. D. Danielopolu and V. Danulescu (Bucharest).—p. 13.

18. **Pleuro-pulmonary Symptoms with Heart Disease.**—Vaquez discusses the various complications of heart disease that may develop in lungs or pleura, ranging from simple dyspnea during exertion and cardiac asthma to functional disturbances without anatomic basis, pulmonary edema, congestion and edema, and the apoplexy sometimes discovered postmortem. He regards cardiac asthma as something analogous to the angina pectoris that comes on when reclining, or like pulmonary edema, all are the result of insufficiency of the left ventricle. He has known cardiac asthma to merge insensibly into pulmonary edema. The latter he explains as of mechanical origin, the result of an afflux of serous fluid into the lung when the pressure in the pleura, previously positive, changes to negative. Intravenous injection of saline, in animals, has been known to bring on acute edema of the lungs, and Achard and Laubry have witnessed its development in persons with insufficient kidneys after subcutaneous injection of physiologic salt solution. Vaquez has noted the same in persons with high arterial pressure and general arteriosclerosis. Ingestion of excessive amounts of fluids may have a similar effect. Distension of the ventricles, especially of the left, is the immediate cause of edema of the lungs. A nervous factor may be superposed, but the overloading of the heart is the main thing. Pleurisy is frequent with heart disease, he continues; patients with mitral insufficiency, pleural adhesion or myocardial degeneration are particularly liable to pleurisy. It usually locates on the right side, probably

secondary to the congested condition of the liver, and it displays a marked tendency to recurrence. The aggravation of the dyspnea is often the only symptom to call attention to it. The effusion increases slowly and progressively. He adds that the effusion should be tapped even when it does not seem very abundant; the amount withdrawn often surpasses the anticipations. The relief from evacuation of the fluid is liable to be marked, the heart being thus enabled to work properly once more and to respond to digitalis, when before digitalis seemed to have lost all efficacy. Sometimes eight or ten punctures may be necessary; he had one patient who required forty.

Journal de Médecine de Bordeaux

January, LXXXVIII, No. 1, pp. 1-20

20 Impressions of a Surgeon at the Front. Charbonnel.—p. 3.
21 Summer Diarrhea in the Troops. (Les entérites dysentériformes estivales des troupes en campagne.) Chayron.—p. 9.
22 Paratyphoid Fever plus Dysentery. J. Carles and Charrier.—p. 13.
23 Food Value of Tendons and Fascia Tissue. P. Carles.—p. 16.

Paris Médical

January 13, VII, No. 2, pp. 37-52

24 *Pathogenesis of Gonococcus Infection. (Action des courants énergétiques de l'organisme sur l'automotilité du gonocoque.) E. Roucayrol.—p. 37.
25 Apparatus for Continuous Extension for Fractures. M. Deguy.—p. 43.
26 Albuminuria in the Troops of the Far Eastern Front. Massy and C. Richet, Jr.—p. 47.
27 *Shrapnel Ball Entering the Shoulder Passes through Right Auricle into Femoral Vein. Grandgérard.—p. 48.

24. **Pathogenesis of Gonococcus Infection.**—Roucayrol insists that the urethra, while it may be the portal of entry for the gonococci, does not detain them. They soon spread to a distance, but not by the lymphatics and not by the blood. They are seldom and only transiently found in the blood. He thinks it more likely that they pass upward by way of the nerves, and he gives diagrams to show how the electric charge of the gonococcus might aid in its transportation along the nerves, the natural electric currents of the nerve serving to propel it along by the rotation of the gonococci. In any event, general gonococcus infection must be reckoned with almost from the very first.

27. **Migration of Projectile through the Heart.**—The shrapnel ball entered at the shoulder and its course was traced, by radioscopy as it entered and lingered in the right auricle and passed thence into the inferior vena cava and the femoral vein, finally lodging in the hypogastric vein, all without inducing any appreciable symptoms. The practical lesson from the case is that it may be possible to learn the manipulations that would expel a projectile from the heart, and thus facilitate its removal by a minor operation, instead of incising the heart itself. In this case the vein was so difficult to reach and suture that the ball was left in it, with merely a ligature thrown around it to prevent further migration of the projectile.

Presse Médicale, Paris

January 4, XXV, No. 1, pp. 1-8

28 *Simplified Technic for Vaccination against Typhoid and Paratyphoid. (Réduction du nombre des injections employées pour la vaccination mixte antityphoïdique et antiparatyphoïdique A et B.) F. Widal and A. T. Salimbeni.—p. 1.
29 Paralysis of Superior Facial Nerve with Cerebral Hemiplegia. M. P. Le Damany.—p. 1.
30 Local Eosinophilia with Factitious Conjunctivitis. J. Bollack.—p. 3.

28. **Simplified Technic for Antityphoid Vaccination.**—Widal and Salimbeni use a simple emulsion of typhoid and paratyphoid A and B bacilli killed by heat in 9:1,000 saline. It contains 10 billion germs to each 3 c.c. This amount is injected, first 1 c.c. and then 2 c.c. after a seven day interval, and this is all. Nearly 5,000 persons given this concentrated vaccine showed no more reaction than is customary with the weaker vaccines, while the antibodies were found later in the blood as abundant as in those given the usual four doses. They have given the total dose at once to a number of persons while others in the same environment were given the two or the four doses. These persons are now being supervised to learn the difference in the effect with the various technics. To date the advantages seem all on the side of the stronger vaccine, with fewer injections.

Progrès Médical, Paris

January 6, XXXII, No. 1, pp. 1-8

31 Spastic Brachial Diplegia Following War Wounds of the Neck. M. Dide and J. Lhermitte.—p. 1.
32 Traumatic Hemianopsia in Quadrant Form. E. Ginestous.—p. 3.
33 Perverse Sexual Psychology. (A propos de Sacher Masoch.) P. Voivenel.—p. 4.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 6, XLVII, No. 1, pp. 1-32

34 *Study on the Cadaver of Frank's Subcutaneous Symphyseotomy. O. Burckhardt.—p. 1.
35 Surgical Experiences in Swiss Military Hospital. A. L. Vischer.—p. 19.

January 13, No. 2, pp. 33-64

36 War Fractures of the Femur. (Kriegschirurgische Erfahrungen bei der Behandlung von Oberschenkelfrakturen.) J. Ledergerber and F. Zollinger.—p. 33. Commenced in No. 1 p. 10.

34. **Subcutaneous Symphyseotomy.**—Burckhardt has been doing symphyseotomy on cadavers by various technics, and asserts that Frank's subcutaneous method is easy to apply and no special instruments are required for it, while anatomic study of the parts afterward fully justifies the claims that have been made for it. The incision in the lower part of the symphysis and in the suspensory ligament of the clitoris allows the latter and the urethra to sag loosely, which leaves an open space between the edge of the symphysis and the clitoris region. There was no injury of soft parts on any of the cadavers, not even the young nulliparae. The incision in the skin is no longer than the width of the scalpel blade, and it can be sutured securely. Frank's innovation of cutting from below upward entails a number of advantages, the importance of which is scarcely realized except by study of conditions on the cadaver. Burckhardt declares that it places symphyseotomy at once in the hands of the general practitioner, but he warns that we must not expect the impossible from it. A true conjugate of 7 cm. or, at the utmost, 6.5 cm. is the extreme limit. He undertook the research to aid him in his own practice, but found matters so surprisingly encouraging that he reports them in detail.

The scalpel is introduced at the middle of the symphysis, and the lower half and clitoris suspensory ligament are severed. Then the scalpel is drawn out of the symphysis, below, and its blade is pressed against the front of the upper half of the symphysis, cutting it through from the front, the scalpel always in the one hole in the soft parts through which it entered. This small hole can be sutured at once or covered with a tampon until after delivery. Burckhardt found the symphysis from 36 to 51 mm. high and from 18 to 26 mm. thick in fourteen female cadavers. In thirteen others, from 15 to 91 years of age, the range was 42 to 52 and from 14 to 30 mm. respectively. He lists these measurements in detail, comparing them with the height. As the clitoris sags as its ligament is divided, it drags its vessels out of the way. The vessels behind the symphysis are separated from it by a layer of tissue, and no important vessels of any kind are encountered on the median line.

Deutsche medizinische Wochenschrift, Berlin

January 4, XLIII, No. 1, pp. 1-32

37 *Digitalis Treatment and Arrhythmia. H. Boruttau and E. Stadelmann.—p. 1.
38 *Physical Exercise as Influencing the Weight of the Heart. (Die Beeinflussung des Herzgewichts durch körperliche Arbeit.) W. Dibbelt.—p. 4.
39 *Hernia and War. (Eingeweidebrüche und Krieg.) F. König (Marburg).—p. 6.
40 *Ferments of the Cerebrospinal Fluid in Man. E. Leschke and L. Pincussohn.—p. 8.
41 Psychogenous Tremor. (Das ideogene Moment in der Entstehung des Zitterns bei Kriegsteilnehmern.) W. Fürnrohr.—p. 9.
42 *Contralateral Treatment of Functional Paralysis and Contracture. Stulz.—p. 12.
43 *Traumatic Scarlet Fever. S. Korach.—p. 12.
44 Hormonal in Treatment of Dysentery. G. Zuelzer.—p. 14.

45 The Prognosis with Conservative Treatment of Abdominal Wounds. (Die Aussichten der konservativen Behandlung Bauchverletzer im Bewegungskrieg.) C. Jacobs.—p. 15.
46 Sterilization of the Hands in First Aid to the Wounded. (Die Händedesinfektion beim Verbinden, besonders im Kriege.) Renner.—p. 18.
47 Advantages of Certain Mineral Waters in Treatment of Nephritis. (Sind Brunnenkuren bei Behandlung der Nephritiker zweckdienlich?) Lenné.—p. 18.
48 Bone Marrow as Nourishing Food. (Knochenmarkmehl zur Hebung der Volksernährung.) Werckmeister.—p. 19.
49 Fraudulent Alleged Substitutes for Food. (Gegen den Schwindel mit Lebensmittelersatz.) J. Schwalbe.—p. 20.

37. **Digitalis Treatment of Arrhythmia.**—Boruttau and Stadelmann expatiate on the insight into arrhythmia in recent years afforded by electrocardiography. It has shown that constant arrhythmia often occurs with a comparatively sufficient heart. This has hitherto been entirely overlooked when the intervals between the pulse beats do not show extreme and sudden differences. Very small doses of digitalis restore conditions promptly to approximately normal in these cases, slowing the heart beat and strengthening the pulse, and the phenomena from stasis subside. Fahrenkamp has recently published a study of this subject based on 412 cases of heart disease. His conclusions are said to sustain those emphasizing the value of very small doses of digitalis long kept up in treatment of arrhythmia perpetua. The digitalis should be supplemented and alternated with diuretics and the mode of life and diet regulated to correspond. The digitalis can be given repeatedly or continuously, under control of electrocardiography. The latter is as indispensable here as for the certain diagnosis of the arrhythmia perpetua and its differentiation from other conditions which call for different treatment. Seven cases are described in detail to show the more serious types liable to be encountered. The experiences related demonstrate the retarding action of small doses of digitalis on the overfrequent beat of the auricles bordering on fibrillation. They think that the vagus is primarily involved in the retarding of the pulse by small doses of digitalis, as a similar result can sometimes be transiently obtained by compression of the vagi.

38. **Influencing the Weight of the Heart by Physical Labor.**—Dibbelt records the data from examination of the heart from twenty-two soldier cadavers, comparing them with the total weight, the occupation, etc. The men accustomed to manual work or doing such work under the conditions of the war, had as a rule strong, large hearts. All parts of the heart shared proportionately in the increased strength and weight of the body in general.

39. **Hernia in Wartime.**—König remarks that civilians are showing in a number of ways the pathogenic influence of the war, as in the greater prevalence of pyogenic infections, crops of boils and eruptions, explainable in part by alimentary disturbance and in part by the difficulty in getting bed and body linen washed on account of the poor quality of the soap. He has been impressed further by the remarkable frequency of hernia; for this he regards the loss of adipose tissue as responsible. The loss of flesh is the result of the change in the customary diet. This and the greater amount of roughage in the bowels, and often the unaccustomed physical labor for those past the vigor of youth, readily explain the frequency of hernia as another consequence of the war. The number of cases of incarcerated hernia in his service is also greater: from 40 in 1913-1914, to 68 in 1915-1916, and these almost all in civilians. This is the more remarkable as the proportion of civilians in his service is very much smaller. Femoral hernias have increased out of all proportion, and gangrene develops exceptionally rapidly after incarceration. Hernia into the abdominal wall was encountered in 30 per cent. of the operative cases last year; thirty-four died out of the sixty-three abdominal wall hernias that formed 11.5 per cent. of Riedel's total 550 hernia cases. König ascribes the prevalence of abdominal wall hernias to the stronger peristalsis that is the rule now on the war diet.

40. **The Ferments of the Cerebrospinal Fluid.**—Leschke and Pincussohn found diastase in all the cerebrospinal fluids they examined, taken from healthy persons and from patients with all kinds of different diseases. It was present only in very small amounts, and no regularity was apparent in any respect. The ferment content of the fluid seemed to be independent of the cell content. They never found any evidence suggesting the passage of ferments from the blood into the fluid. This they regard as testifying to the fact that the cerebrospinal fluid is a specific secretion, and not of the nature of lymph or a transudate.

42. **Contralateral Treatment of Functional Paralysis and Contracture.**—Stulz has often succeeded in curing hysteric contracture by getting the patient to imitate exactly with the sound mate the contracture of the affected side. When the patient sees that the contracture is such a simple matter to reproduce with the sound limb, he seems to lose his fear of it, and the contracture disappears spontaneously in the course of a day or so.

43. **Traumatic Scarlet Fever.**—The young physician had been repeatedly exposed to scarlet fever at different times but had never contracted it. After casual excoriation of one hand and further exposure to scarlet fever, be developed typical scarlatinal lymphangitis in forty-eight hours. By the third day he presented the general symptoms of scarlet fever with the exanthem. Korach compares with this the few similar cases on record.

Medizinische Klinik, Berlin

January 7, XIII, No. 1, pp. 1-30

50 Experiences with Field Surgery. F. Krause.—p. 1.
51 The Internal Medicine Course. (Antrittsvorlesung.) M. Matthes.—p. 3.
52 *The Difficulties of Differential Diagnosis of Convulsions. (Diagnostische Schwierigkeiten bei Krampfleiden.) G. Flatau.—p. 9.
53 Determination of the Limits of the Frontal Sinus by Percussion. (Methode zur Bestimmung der Stirnhöhlengrenzen und ihre diagnostische Bedeutung.) R. Goldmann.—p. 11.
54 Provisional Ligation in Shoulder or Pelvis Region of Artery Injured in Limb Below. (Versorgung verletzter Extremitäten-Schlagadern in der Nähe des Schultergürtels und des Beckenringes.) Busalla.—p. 14.
55 *Trauma in Etiology of Cancer. (Bösartige Geschwülste als Unfallfolgen.) v. Kuester.—p. 15.
56 Reasons Why Diseases, Germs and Signs Should Not Be Named for Those Who Describe Them First. K. Brandenburg.—p. 28.

52. **Differential Diagnosis of Convulsions.**—Flatau comments on the diversity of symptoms accompanying convulsions or their equivalents, and especially those just preceding them. Differentiation is particularly difficult when there is merely an aura without an actual seizure. When the patient suddenly sees things around as if removed to a distance or become very small, the trouble is more liable to be hysteria than epilepsy. He insists that an actual epileptic seizure must have occurred before it is possible to label the case as epilepsy. With convulsions at night, waking out of sleep, epilepsy is more probable, as also when convulsions occur without known cause. Fainting may sometimes be the first manifestation of a tendency to epilepsy. It is sometimes impossible to distinguish between a fainting attack and an attack of petit mal. With epilepsy, the loss of consciousness is comparatively brief, very rarely lasting longer than half an hour, while with hysteria, prolonged unconsciousness is the rule, although usually not equally profound all the time. The reaction to irritation during the loss of consciousness also differs. Violent flinging the arms around and curving the whole body (*arc de cercle*) speak for hysteria, but it is possible for an epileptic to have hysteric convulsions. The family history is also instructive. He has so frequently found a history of migraine in one of the parents that he has become convinced that there is a close connection between migraine and epilepsy. In conclusion he mentions a rare form of convulsions simulating the epileptic seizure but there is no inherited taint and no somnolence afterward; the attacks come on only after some emotional stress and only late in life and they are amenable to psychotherapy.

55. **Trauma as Factor in Cancer.**—In the case described a factory worker fell with one arm in boiling 10 per cent. sulphuric acid. The cicatrix from the corrosion kept getting inflamed, with eczema and ulceration, and final malignant degeneration of the scar tissue and death twenty-three years after the accident. A causal connection between the accident

and the cancer was admitted by the courts and workman's compensation was paid to the heirs.

Münchener medizinische Wochenschrift, Munich

December 19, 1916, LXIII, No. 51, pp. 1785-1820

57 *Intensive Roentgenotherapy of Uterine Hemorrhage. (Beseitigung von Myom- und Wechselblutungen in einmaliger Sitzung durch Zinkfilterintensivbestrahlung.) L. Seitz and H. Wintz.—p. 1785.
58 *Febrile Pernicious Anemia. F. Jessen and W. Unverricht.—p. 1787.
59 *Predetermination of Sex. (Zur willkürlichen Geschlechtsbestimmung.) P. W. Siegel.—p. 1787.
60 Prevention and Treatment of Diphtheria. F. Reiche.—p. 1788.
61 *The Diet with a Weak Heart. (Die rationelle Ernährung des schwachen Herzens.) A. Lorand.—p. 1790.
62 *Clinical and Functional Studies of Nephritis. III. H. Machwitz and M. Rosenberg.—p. 1791. Continuation.
63 Legal Decisions Affecting Physicians. (Aerztliche Standesangelegenheiten. XV.) P. Kaestner.—p. 1795.
64 Methyl Violet for Treatment and Dressing of Wounds. E. Baumann.—p. 1805.
65 Explanation of Hard Traumatic Edema of Back of Hand. G. Hohmann.—p. 1810.
66 The Difficult Differential Diagnosis of Typhus; Importance of Agglutination of Strain of Proteus. (Fleckfieber.) A. Soucek.—p. 1814.
67 Rebuilding the Orbit. (Neue Methode zerschossene und verunstaltete Augenhöhlen zu dehnen und zu formen.) B. Sachse.—p. 1815.
68 New Formation of Bone from Displaced Periosteum after Grazing Bullet Wound. L. Neugarten.—p. 1817.
69 Working Artificial Arm. Mosberg.—p. 1818.
70 Reeducation after Amputation of Leg. F. Kirchberg.—p. 1818.

57. **Cure of Uterine Hemorrhage under Single Intensive Roentgen Exposure.**—Seitz and Wintz report excellent results in cases of hemorrhage from myomas and climacteric hemorrhage from a single exposure to intensive Roentgen-ray treatment, using a 0.5 mm. zinc filter. This allows twice the dose practicable with an aluminum filter. Several fields are exposed, and with very sensitive patients it is better to fraction the total dose over two or three sittings. But it is possible to accomplish the desired result at a single four or five hour exposure, each field taking about an hour.

58. **Febrile Pernicious Anemia.**—In the case described the fever was remittent but without any regularity; attacks of pain and circumscribed swellings developed at various points but subsided completely. The patient was a man of 58 and the anemia was of the pure pernicious type. Some minute bodies were found in the blood and red corpuscles, and symptomatic benefit was realized under neosalvarsan, but the disease progressed in waves to final heart failure in less than a year. The same small bodies were found in the blood of a rabbit inoculated with the patient's blood, but to date the animal has shown no symptoms.

59. **Predetermination of Sex.**—Siegel's compilation of data showing a connection between the state of ripening of the ovum at the time of conception and the sex of the embryo has already been mentioned in these columns, Dec. 18, 1915, p. 2205. He now has records of 300 pregnancies following the brief leave of absence of the soldier husband from the front. He classifies the conception by four periods: from the first to the ninth day after the onset of menstruation; from the tenth to the fourteenth day, and from the fifteenth to the twenty-second. The remaining few days before the return of menstruation show so few conceptions that he omits this premenstruum period altogether from his tabulations. The findings in the latest series confirm his previous conclusions, namely, that a girl may be expected when the ovum is young, from the fifteenth to the twenty-third day. A boy is more probable when the ovum is overripe, that is, from the twenty-seventh day from the onset of menstruation to the ninth day following the onset of the next menstruation. During the periods between these the chances are about even for a boy or girl. One of his tables embraces 115 cases. It shows in the first to the ninth day period, 48 boys and 8 girls; from the ninth to the fourteenth, 10 boys and 14 girls; from the fifteenth to the twenty-third, inclusive, 5 boys and 26 girls; from the twenty-fourth to the twenty-sixth, no boys and no girls; from the twenty-seventh to the onset of the next menses, 4 boys and no girls. Pryll has recently published a somewhat similar series of 25 cases, his findings showing a similar connection with the ripening of the ovum. The young ovum (fifteenth to the twenty-third day inclusive) gave, in Pryll's series, 71 per cent. girls; in Siegel's series 84 per cent. girls. The overripe ovum, (two days before to nine days after the onset of menstruation), gave 86 per cent. boys (Siegel), and 82 per cent. (Pryll).

61. **The Diet with a Weak Heart.**—Lorand has often noticed that persons on a predominantly vegetable diet do not get fatigued so readily as on an abundant meat diet. He has also noted often a remarkable improvement in the muscular weariness of diabetics when they are placed on a vegetable diet. There seems to be something in vegetables and fruits that enhances muscular activity. This may be the explanation for the almost unbelievable capacity of the Bulgarian peasant for muscular work without fatigue; his food consists only of vegetables with black bread and a little cheese. Vegetables contain potassium, and the importance of this in the diet has been recently emphasized anew by Urbeanu who found that fowls and rats kept on an abundant albumin and ample calories diet, but deprived almost entirely of potassium, developed paralysis, hemorrhages, and other symptoms characteristic of deficit diseases, with fatal cachexia. The nerve substance was found very much degenerated in all the animals. If potassium was fed to them in time, they recuperated perfectly and grew strong again. Lorand's conclusion is that organic compounds of potassium are indispensable to keep nerve and muscle substance in normal condition. Human muscles, including the heart muscle, contain large proportions of potassium. Everything that promotes muscular functioning helps to keep the heart muscle in good condition, as well as the other muscles. Muscular fatigue is a prominent symptom in diseases of deranged metabolism, such as myxedema, exophthalmic goiter, and severe diabetes. The muscular fatigue under these conditions shows marked improvement on a cereal or vegetable diet. This supplies the needed potassium and phosphoric acid. Lorand thinks that the instinctive longing for bread and potatoes is due to their content in salts, etc., more than to their carbohydrate value. No other articles of food are missed so much as these in special diets. With a weak heart, particular care must be paid to these intangible elements in the diet. An unbalanced diet is especially dangerous with a weak heart. The heart action should be constantly supervised on an antidiabetic diet or obesity starvation diet; also on an antigout diet, and in the elderly with weak hearts. Any undernourishment of this kind might have very serious results in their case. The elderly should never be allowed to fast for religious purposes, and persons with weak hearts should never go long without food. Lorand adds that the dependence of the heart action on the intake of nourishment is shown by the facts that the heart beat is less vigorous with a fasting stomach, and that in fatal disease the heart gives out entirely, that is, death occurs, in the early morning hours, when the stomach has long been empty.

62. **Treatment of Nephritis.**—In this third instalment of their study of nephritis, Machwitz and Rosenberg warn that with syphilitic nephrosis mercury must be used very cautiously as this has a toxic action on the same tissues, the epithelium of the tubuli, which suffer predominantly from the syphilis toxins. Salvarsan, on the other hand, does not have this by-effect on the kidneys, but, in giving it, we must not forget that salt and fluid have to be restricted as much as possible. With acute glomerular nephritis, rest in bed is the most important of all measures. Volhard had only 3 of his 71 cases of acute diffuse glomerular nephritis pass into a chronic phase, but Machwitz and Rosenberg say that of their 150 patients of this group only 74 recovered entirely; 12 died of uremia, 6 from heart failure and in 18 the disease passed into a chronic phase; 35 were improved but 5 others failed to improve and have probably developed a chronic phase. Of their 40 cases, chronic when first seen, only 11 had been kept in bed during the acute phase, including 6 who had been treated in the hospital. Absolute bed rest is imperative as long as there is any blood in the urine, and while there is still an appreciable albumin content in the urine much physical exertion should be avoided. Their experience has shown

that the albumin intake must not be over nor much below 30 gm. a day; the salt intake about 5 gm., and the fluids restricted to 1.5 or 2 liters a day. Daily analyses of the urine and repeated tests of kidney functioning over long periods in long series of cases have confirmed that it is immaterial so far as the kidneys are concerned, whether animal or vegetable albumin is given, meat instead of milk, and black bread or white bread. An exclusive milk diet would give more than the permissible albumin intake. Sweetened fruit juices are useful to supply calories in part of the fluid. Venesection is undoubtedly of benefit although the assumption that the retained albumin is thus released has not been sustained by recent research; the residual nitrogen does not decline but rather rises a trifle even after profuse venesection. With uremic convulsions, lumbar puncture is the sovereign measure. With chronic glomerular nephritis in the second phase with hypertonia and albuminuria but no functional disturbances, a light mixed diet is indicated. When it passes into the terminal phase, dietetic restrictions are of vital importance, cutting off from the diet as much nitrogen as possible, allowing only 3 or 5 gm. of salt. The residual nitrogen of the blood is the guide to treatment here. The article is to be continued.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 4, XXXVIII, No. 1, pp. 1-16

71 Case of Partial Monoplegic Tetanus with Death from Supposed Anaphylaxis. T. Salvatore.—p. 5.

Pediatria, Naples

January, XXV, No. 1, pp. 1-64

72 *Improved Technic for Vaccination against Typhoid and Paratyphoid. (Nuovi metodi di vaccinoterapia antitifica ed antiparatifica.) G. Caronia.—p. 1.
73 *Interval before Immunization after Vaccination against Typhoid. (Sul tempo di comparsa dei fenomeni immunitarii nei bambini immunizzati con vaccino antitifico.) Pastore.—p. 38.

72. **Vaccines against Typhoid and Paratyphoid.**—Caronia says that vaccines made with bacilli killed by heat or chemical action, such as the Wright-Leishman, Pfeiffer-Kolle, Russel and Besredka vaccines and Vincent's first vaccine, are more effectual in prophylaxis than in curing the established disease. On the other hand, vaccines made with products of the bacterial body under the action of chemical, physical or biologic agents have actual curative value. This latter group includes the Wassermann vaccine, the Noguchi, Sclavo, Vincent's second, and the Di Cristina vaccine. Caronia regards the latter as especially promising, his experiences with it and with two vaccines made on the same principles were invariably favorable, as he describes in detail. The benefit seemed equally pronounced by the intramuscular or intravenous route. The strength should be kept up by nourishing food, semiliquid. He is convinced that many mishaps in typhoid have been ascribed to the disease when in fact the lack of nourishment was the decisive factor. The Di Cristina vaccine is made by mixing with a slightly alkaline bouillon (*acqua di carne*) blood from a typhoid patient. The blood must have pronounced agglutinating power and be mixed with the bouillon in a 5 per cent. dilution. The medium thus prepared is inoculated with from four to six typhoid strains and the whole set aside for two days. Then guinea-pig complement is added to complete the bacteriolysis, and the whole is incubated at 37 C. for another twenty-four hours, then centrifugated; phenol is added to 0.5 per cent. and the whole inactivated at 50 C. Caronia has modified this technic somewhat, his first vaccine being made with five or six typhoid strains grown on agar for from sixteen to twenty-four hours. Then the colonies are transferred to physiologic solution and fresh typhoid serum is added. This serum must be rich in agglutinins and amboceptors. The emulsion thus obtained is incubated at 37 C. for about seventy-two hours, then more fresh typhoid serum is added, with 0.5 per cent. phenol. The bacteria bodies not destroyed by this time are removed by centrifugating, and the whole is kept at 55 C. for an hour on three successive days. His second vaccine is made like Di Cristina's except that he adds, just before centrifuging, more fresh typhoid serum to replace the complement that has been used up. These three vaccines act about the same. Caronia's first vaccine has the advantage of not containing any extraneous substance (meat broth or guinea-pig serum), but it requires more typhoid serum. His second vaccine contains a larger proportion of the products from the lysis of the bacilli. Similar vaccines are made for paratyphoid. All these three vaccines displayed a potent action on typhoid patients, leading to resolution of the process in a few days and sometimes in a few hours. The general condition and the nervous system seem to feel the benefit first, then appetite returns and the bowel functioning becomes regular. There is usually a general reaction after each injection, most pronounced by the intravenous route, but the reaction is less at each injection. The chart is given for each of the forty-five cases given this vaccine therapy alone.

73. **Immunization Process under Vaccine Therapy.**—The preceding article is from the clinic at Naples. Pastore is intern at the Palermo clinic in charge of Di Cristina, and here reports experiences there with a number of children given preventive injections of antityphoid vaccine made by the current technics in vogue. The aim was to determine how soon after the injection the serum acquired agglutinating and complement-deviating properties. The effect of the various vaccines was tested and recorded according to the length of the interval before the immune bodies appeared in the serum. She found the Wassermann and Kolle vaccines most powerful. The Di Cristina and the Caronia vaccines took a little longer and slightly larger doses were required to accomplish the same result.

Policlinico, Rome

January 7, XXIV, No. 2, pp. 41-72

74 Emergency Treatment of Deep Wounds. (Sulla cura dei feriti gravi cavitari in un' ambulanza chirurgica avanzata.) R. Alessandri.—p. 41.
75 Test to Estimate Hardness of Roentgen Tubes. L. Siciliano.—p. 45.
76 *Iodin Treatment of Tuberculous Epididymitis. (Caso di tubercolosi dell'epididimo guarito con la cura alla Durante.) A. Sofia.—p. 55.

76. **Iodin Treatment of Tuberculous Epididymitis.**—The man of 24 had a fistulous epididymitis, and Sofia gave him a local injection of Durante's iodo-iodid solution every fourth day and a subcutaneous dose every day. The cure was almost complete by the end of a year and a half, the process having subsided to a few soft and indolent minute lumps.

[Durante's solution is a mixture of iodin, potassium iodid and distilled water, usually in the proportion of 1 part iodin, 3 parts potassium iodid, and 100 parts distilled water.]

Semana Medica, Buenos Aires

1916, XXIII, No. 45, pp. 457-482

77 Classification of Inorganic Acids. (Separacion y caracterizacion sistematica de acidos de un mismo grupo.) P. J. Pando.—p. 457.
78 Influenza in 1916. (Consideraciones acerca de la epidemia de grippe de este año.) J. Solari.—p. 466.
79 *Suggestion to Aid in Radioscopy of the Lungs. C. Heuser.—p. 474.
80 *Lymphocytosis in Syphilis. C. P. Mayer and A. C. Gourdy.—p. 475. Continuation.

No. 46, pp. 483-510

81 High Application of Forceps. (Consideraciones sobre la aplicacion de forceps en el estrecho superior.) J. C. L. Massini.—p. 483.
82 The Recent Epidemic of Influenza. J. C. Mira.—p. 485.
83 *Genital Prolapse. T. J. Piccardo.—p. 499.

79. **Device to Facilitate Radioscopy of Lungs.**—Heuser uses in radioscopy a screen of paper on which are fastened strips of lead running entirely across the screen, each 10 mm. wide, leaving spaces of 1 cm. wide between them. The effect of this, as is well known in optics, is to make the light strips much clearer to the view by this kind of doubling of the field to be inspected. This innovation was suggested to him by looking out through the slits in a window blind. He says it is like a segmented diaphragm, rendering it much easier to compare the lung on the two sides.

80. **Lymphocytosis in Syphilis.**—This part of Mayer and Gourdy's long serial article shows that lymphocytosis is liable to be not only the earliest sign of syphilis but that it persists and may increase during the secondary phase of the disease. (Their article was summarized in these columns Feb. 24, 668, as two months' issues of this exchange were received at one time.)

83. **Genital Prolapse.**—Piccardo regards genital prolapse as an ordinary hernia, the vaginal wall representing the hernial sac, and he treats it on this basis, like any hernia. The details of ten cases are tabulated to show the advantages of this vagino-perineal plastic method of treatment, and also to show the importance of the levator ani in correction of the prolapse.

Siglo Medico, Madrid

January 6, LXIV, No. 3291, pp. 1-16

84 *Vinegar-Water and Acid Wines in Treatment of Typhoid and Paratyphoid. B. G. Alvarez.—p. 2.
85 Asphyxiating Gases as Weapon in War. F. Rabena.—p. 3.
86 Colitis with Ulceration and Erosions. L. Urrutia.—p. 4.

84. **Vinegar in Typhoid.**—Alvarez expresses surprise that more attention has not been paid to the statement of A. Loir, three or four years ago, to the effect that 20 gm. of vinegar in a liter of contaminated water kills bacteria in it, including those of the typhoid group. The same occurs when the water is mixed half and half with an acid wine. It has been Alvarez' experience in forty years of practice to give typhoid and paratyphoid patients an abundance of acid drinks, and he ascribes his clinical success mainly to this fact. He formerly used lemonade or diluted wine, but has lately used the vinegar water more and more, or hydrochloric acid lemonade. The mortality in his cases has been small and always from complications.

Russkiy Vrach, Petrograd

1916, XV, No. 46, pp. 1081-1104

87 Some of the Medical-Surgical Sanitary Problems at the Front. N. A. Velyaminoff.—p. 1081. Concluded in No. 47, p. 1108.
88 The Russian Substitutes for Salvarsan. (Arsola, arsenola i benzarsan.) V. V. Ivanoff.—p. 1088; Idem. M. N. M. Aitova.—p. 1095.

No. 47, pp. 1105-1128

89 Some Unpublished Letters of Pirogoff. (N. I. Pirogoff nakanunie professuri.) S. Y. Shtraikh.—p. 1105.
90 Bacteriologic Technic as Modified for War Conditions. B. A. Bolter.—p. 1117.
91 Operative Treatment of War Wounds of the Skull. M. S. Astroff.—p. 1119. Conclusion.
92 *The Spleen as a Regulator of Blood Production. (O vliyanie selezenki na krovetvornuiu sposobnost kostnago mozga.) B. N. Stradomsky.—p. 1122.

92. **Influence of the Spleen on the Blood-Producing Function.**—Stradomsky reports the results of experimental research and clinical experience which seem to have demonstrated that the spleen has a twofold hormone action on the bone marrow. It seems to have an inhibiting action on the production of red corpuscles in the bone marrow, while at the same time it stimulates to increased destruction of reds. In normal conditions these two influences balance each other, but when the spleen hormone is abnormal or lacking, the bone marrow produces unlimited quantities of reds but their quality deteriorates. They die off more readily, and this increased erythrolysis sets up an automatic vicious circle. Among the facts on which these assumptions are based are the increased numbers of red corpuscles found in the blood stream after splenectomy, the number rising in the course of one, four or six weeks after the removal of the spleen, while almost at once afterward the red corpuscles present the Howell-Jolly bodies, showing that these reds are young, immature forms. These findings indicate that the bone marrow is functioning to excess after having been released from the controlling influence of the spleen hormone. After splenectomy, administration of spleen extract is liable to give results confirming this rôle of the spleen and its extract as a regulator of blood production. Another argument in favor of his assumptions is the atrophy of the follicles in the spleen to which Hutchinson and others have called attention in cases of polycythemia. It might be objected that polycythemia would follow in every case of disease of the spleen, but the diversity of pathologic conditions in the spleen may leave some parts of the organ intact, at least enough to produce sufficient of the hormone to prevent excessive production of reds. There is also a possibility that the bone marrow may not respond in every case always in the same way. Another objection is that the efficacy of spleen extract in treatment of anemia seems to contradict his views, but he explains this away by certain biologic laws on the effect of small doses in contrast to that from large amounts. The work issues from the pathologic laboratory and clinic of the University of Kharkov.

Mitteilungen a. d. Fakultät der k. Univ., Tokyo

1916, XV, No. 3, pp. 397-542. German Edition. Last indexed May 27, 1916, p. 1751

93 Vasoconstrictor Action of Human Serum on Isolated Heart of Frogs Probably Due to Globulin Content. S. Sakai and T. Hiramatsu.—p. 397.
94 *Chief Mode of Infection with the Ankylostoma Duodenale and Its Route after Oral Infection. Y. Miyagawa.—p. 411.
95 *Prophylaxis of Infection with Japanese Schistosoma. (Veränderungen der Eier des Schistosomum japonicum under den Einwirkungen verschiedener physikalischen und chemischen Agenzien und über einige prophylaktische Massregeln der Schistosomiasis.) Y. Miyagawa.—p. 453.
96 *Pancreatic Diabetes. (Experimentelle Untersuchungen über Pankreasdiabetes mit bes. Berücksichtigung des Eiweissabbaues und der Zucker- und Glykogenbildung aus Eiweiss.) K. Ujihara.—p. 477.

94. **Modes of Hookworm Infection.**—Miyagawa gives four double page charts showing the findings in different phases of his research. His work is accompanied by five photographic plates with twenty microscopic views. He states that sunlight is not necessary for the development of the eggs but rather detrimental, while oxygen and moisture are indispensable. He also states as a fact that ankylostoma eggs can be easily destroyed by mixing the egg-containing fecal material with urine and allowing it to putrefy well. This he regards as extremely important from the practical standpoint. The larvae can be collected most readily by placing a small dish of pure water in a larger Petri dish containing the egg-laden fecal material. As the larvae hatch out, they collect in the water dish as they seek water, and they will be found assembled in this dish in from ten to thirty days. Whether infection occurs by the mouth or through the skin the larvae pass into the lung tissue to begin their development, and they are more resistant to chemical action thereafter than larvae that have not been in lung tissues. The young ankylostomas coming from their trip through lung tissue are able to resist the action of gastric juice for twenty-four hours. The chief mode of infection with the ankylostoma is through the skin. This he proved by experiments on dogs in open fields. The larvae are so resistant to lime and other salts that encysted larvae retained their vitality after being kept for six hours in milk of lime, and for twenty-four hours in the same twice diluted.

95. **Prophylaxis of Infection with Asiatic Blood-Fluke.**—Miyagawa reports that the results of his research show that if a lime-containing fertilizer (*Kalkstickstoff*) is scattered systematically over a field and its watercourses, all the schistosoma eggs and the intermediate hosts will be destroyed. The eggs in stools mixed with urine and putrefying all die in two weeks in summer and in sixteen days at other seasons. This fact makes it imperative not to deposit the egg-infested stools on open ground or allow them to get into running water. The most favorable conditions for the hatching out of these eggs is in running water.

96. **Pancreatic Diabetes in Dogs.**—Ujihara gives sixteen two or three page charts of the metabolic findings and other details in regard to dogs before and after removal of the pancreas and then treated with various substances. He states that his demonstrations of the direct formation of sugar from amino acid throws light on certain phenomena of glycogen production and metabolism, as he explains in detail. The article fills sixty-five pages, including seven pages of bibliographic references with the titles in full.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

December 30, 1916, II, No. 27, pp. 2321-2364

97 *Behavior of Entameba Histolytica in Presence of Emetin in Human Intestines. J. R. Schiess and N. H. Swellengrebel.—p. 2328.
98 Epidemic Cerebrospinal Meningitis; Four Cases. F. J. Hagen.—p. 2335.

97. **Behavior of Ameba under Emetin.**—The daily ameba findings in the stools of a man of 50 are tabulated to final

recovery under emetin. The *Entameba histolytica* was found in large numbers at first, and later the minute or tetragena form, but in a cat inoculated with the ameba from the stools, only the histolytica form was found, as also in cat after cat inoculated one from another. In the entire series of sixteen cats, nothing but the histolytica form could be discovered. These experiences disprove Darling's assertions as to the diagnostic importance of this method of experimental inoculations. The development of the ameba in the cat does not reproduce the cycle of development as in man.

Finska Läkaresällskapets Handlingar, Helsingfors

December, 1916, LVIII, No 12, pp. 1755-1935

99 *Chromosomes and Heredity. (Kromosomer och arftlighet.) H. Federley.—p. 1755.
100 *Familial Abnormally Large Cornea and Its Relation to Hydrophthalmos. (Om megalokorneas arftlighet.) V. Gronholm.—p. 1792.
101 *Supernumerary Breasts and Nipples in Child-Bearing Women in Finland. (Om forekomsten af hyperteli och hypermasti hos puerperae i Finland, med sarskildt beaktande af de s. k. axelhålemjolk kortlarna.) M. Schroderus and S. E. Wichmann.—p. 1813.
102 *Tuberculosis in a Finnish Province. H. Granfelt.—p. 1880.

99. **Chromosomes and Heredity.**—Thirty-three illustrations or diagrams accompany Federley's article in which he seeks to prove that Mendel's law is the result of the reduction of chromosomes in the maturing of the sexual cells. He reviews the more important publications in this line in the last few years, reproducing many of the illustrations, saying that the more important data have been obtained by parallel cytologic and experimental research. Complicated phenomena of heredity can be traced to the chromosomes.

100. **Familial Megacornea.**—Grönholm relates that he knows a family in which the five sons present a malformation in both eyes, the cornea being abnormally large. The father, mother and the daughter show no signs of the anomaly. The sons' ages range from 2 to 24 years. The diameter of the cornea is 14 mm. in one; 13 mm. in the other of the two brothers whose pictures are given. The normal diameter is about 10 or 11.5 mm. The eyeball itself does not seem unduly large. Two of the brothers have a zonular cataract in both eyes. The same megacolon is pronounced in two male cousins of the mother and in the two daughters of one of these cousins. In all, he found it in thirteen persons in the family, eleven males and two females, in the course of three generations. When a man with the anomaly married outside the family, his children were all free from it. But the daughters in the family, although free from the anomaly themselves, transmitted it to their sons when marrying outside the family. There are five instances of this in the family. The affected fathers have normal children, while the normal mothers have sons affected with the anomaly. A further remarkable feature of this family transmission is that the daughter of a normal daughter in the family likewise transmitted the anomaly to her sons. Grönholm states further that when a man with megacornea married a cousin whose father had the same anomaly, it occurs in his daughters, but if the cousin happens to be a nonconductor, his children will be free from it. The bilateral development and other features of the anomaly point to some constitutional rather than a local cause.

101. **Supernumerary Nipples and Mammary Glands.**—Schroderus and Wichmann found supernumerary mammary glands in 3 per cent. of the 3,350 women delivered at the Helsingfors maternity during their time of service there. This proportion is three times larger than any other yet published. In 41.7 per cent. the anomaly was bilateral; thus they had opportunity to examine 146 axillary mammary glands. About three-fifths secreted a fluid which microscopically seemed to be colostrum at first and actual milk later. In ten cases described more fully a glandular connection between the axillary mammary gland and the main gland could be palpated. These supernumerary glands were among the larger ones, but in none of the cases was there an actual complete mamma in the axilla. In two other cases, of which illustrations are given, the glands in both axillae grew very subsided. In one large as lact woman each mamma was double, milk flowing from two nipples on each breast. The child nursed the four nipples in turn. The size of the axillary glands ranged from very small to 18 by 7 cm., but after the puerperium they shrank in size.

102. **Tuberculosis in Finland Province.**—Among the 5,300 persons of the Malak province only 3,960 were living there at the time of the examination; 1,700 had emigrated, mostly to America. The data in regard to tuberculosis are classified in fifteen tables; tuberculosis in some form was found in 6.87 per cent. of the 3,868 examined and in 3.14 per cent. of the children under 15. Active pulmonary tuberculosis was manifest in 1.68 per cent. of the adults and in 0.27 of the children examined.

Hygiea, Stockholm

LXXIX, No. 1, pp. 1-48

103 *Auditory Reeducation with Electric Sonorous Vibrations. (Erfarenheter med kinesiphone-terapi enligt Maurice.) G. Holmgren.—p. 1.
104 Cerebellar Symptoms after Recovery from Otogenous Meningitis. (Fall av lakt, *diffus, varig, otogen meningit med sekundara* lillhjarnssymtom.) E. Erici.—p. 27.

103. **Auditory Reeducation.**—Holmgren reports his experiences with the Maurice kinesiphone, an electrically driven apparatus for inducing tones with a range of about two and a half octaves. In 70 of his 147 cases the deafness was the work of otosclerosis and this was probable in 22 others. In 25 the deafness had been left by chronic otitis media, and in 15 was the result of a "dry" catarrh of the middle ear. The benefit was most pronounced in these two last groups, about half the patients in these groups showing remarkable improvement, but whether more than can be obtained with the ordinary measures, is open to question. Of the 70 patients with certain otosclerosis, only 6 were much improved but 25 showed slight improvement. The much improved patients were all young women. One for three years had been able to hear a whisper only at 4 and 3 meters, but after ten sittings the figures became 10 and 8 meters. These figures for a girl of 19 were 1 and 6 meters before and 4 and 8 meters after a course of twenty-seven sittings. Holmgren remarks that we are frequently consulted on account of deafness brought on by a cold, fatigue, general depression, etc. Whatever treatment is applied is credited with the improvement that follows the subsidence of the occasional cause. This, he thinks, is the explanation for the "brilliant" results that have been reported in French and Belgian literature from the kinesiphone. The principle of the apparatus is simple, and in the hands of a trained attendant, under the supervision of the physician, the method has the advantage of being less expensive than other methods which have to be applied by the physician himself.

Ugeskrift for Læger, Copenhagen

January 4, LXXIX, No. 1, pp. 1-42

105 *"Assisted" Infants up to Two Months of Age. (Erfaringer om Ernæring og Livsvilkaar hos et større Antal "Plejehjælpsbørn" i de to første Levemaaneder.) P. Hertz.—p. 4.

105. **"Assisted" Infants.**—By this term Hertz refers to the children of unmarried mothers delivered at the public maternity at Copenhagen, who are given 1.5 kroner (about 40 cents) a week for thirteen weeks after the birth of the child. The woman returns once a month for the money and she is expected to bring her child each time. By this means oversight of the children for two months was possible. Of the total 4,115 of these "assisted" infants, only 1.6 per cent. were exclusively bottle-fed from the first, but this proportion increased by the end of the first month, only 40.7 per cent. being still breast fed at that time, and, by the end of the second month, only 27.3 per cent. The bottle-fed children seemed to thrive under the directions for feeding given the mothers, especially when the mothers could give the child the breast at night although during the day it had to be fed artificially. The mortality was considerably less than in previous years. Hertz disapproves of pasteurized milk, saying, "It would be better if this disappeared entirely from the big city." His objection is that as the milk is always boiled again, just before using, the preceding process is superfluous and only injures the milk unnecessarily.

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MYOMAS OF THE UTERUS

WITH SPECIAL REFERENCE TO MYOMECTOMY*

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To my knowledge there has been no reported case of a tumor composed of voluntary (striped) muscle fibers of the fully developed type found in voluntary muscle. It is true that rhabdomyomas occur, especially in the genito-urinary tract, but the striped fibers are always embryonic in character. True myomas are therefore of the involuntary (nonstriped) muscle, and wherever smooth muscle is to be found they are an inherent possibility. Smooth muscle has a remarkable power of hypertrophy, but this is not true of striated muscle, which reaches its maximum in adult life and appears to be incapable of greater development in later years.

Meltzer,[1] referring to Triepel's investigations, calls attention to the fact that the permanent reserve power of the voluntary muscles is comparatively small. Crile[2] and Cannon[3] have shown that under the influence of fear or anger extraordinary reserve of the voluntary muscles can be brought about temporarily. This, however, is not due to hypertrophy, but is the result of acceleration of the blood supply through increased activity of the internal secretion of the thyroid, suprarenals, and other endocrine glands, which at the same time inhibit gastro-intestinal action through the autonomic system and reduce the circulation of blood to the viscera. The increased muscular power comes about in the same way in which an engine steaming at 190 pounds' pressure would produce greater power than when steaming at 160 pounds' pressure. Increased activity of the voluntary muscles results in fatigue, owing to the acid products which accumulate, and these acids are removed from the muscular system through bases which are quickly supplied by food during rest. Stonewall Jackson, one of the greatest soldiers America has produced, by taking advantage of this fact — dividing the march into periods with complete relaxation for a short time between each period and giving the soldiers, during this time of rest, such food as he could obtain — was able to march infantry as many as 40 miles over bad roads in twenty-four hours. This obtained for them the unique appellation of "foot cavalry."

Smooth muscle, on the contrary, apparently cannot be speeded up to the same extent to meet emergencies, but must have time for muscle hypertrophy to take place. Muscle hypertrophies are work hypertrophies, such as occur from obstruction in the gastro-intestinal tract, or they depend on lack of proper stimulation, owing probably to failure of the nodal system, as shown by Keith,[4] which failure gives rise to such various conditions as cardiospasm, pylorospasm, stasis, Hirschsprung's disease, etc.

It has been shown by Cannon and Alvarez[5] that smooth muscle fiber has within itself the power of contraction independent of nerve or blood supply. A bit of intestine placed in Locke's solution will beat for hours. Our knowledge of the heart is most complete in this detail; the heart beat begins in the muscle fibers of the auricle, and the impulses are collected in the sino-auricular node — a primitive muscle-nerve type of ganglion endowed with automatic function. These impulses are carried to the ventricle through the muscle bundle of His, timing the ventricular beat. All smooth muscle, as shown by Keith, has its primary contraction or its beat, so to speak. The intestinal tract has two beats: one from fifteen to twenty times to the minute, which may act as the heart of the portal circulation (Mall), and the second, once or twice to the minute. The latter we recognize as peristalsis. The uterus has its beat, which, during pregnancy, becomes so marked that it is a diagnostic sign of value as the examiner places his hand over the suprapubic region to feel the uterine contractions.

As yet there has been no good explanation of the absence of myomas in the voluntary muscle and the frequency of these tumors in the involuntary muscle. The cause is undoubtedly connected with the primitive power of contraction of smooth-muscle fibers and their ability to hypertrophy quickly in response to demand. In this connection it is well to remember that the round, broad, ovarian and uterosacral ligaments contain smooth muscle derived from the uterine wall, and that myomas and adenomyomas (Cullen[6]) may occur in these locations.

It has been shown that 12 per cent. of white and 30 per cent. of colored women of 50 years of age have uterine myomas. Clark and Miller[7] state that at the Charity Hospital in New Orleans 50 per cent. of colored women of 35 who have not borne children have myomas of the uterus. This high percentage indicates that only a small proportion of women with myomas have symptoms, and therefore we cannot accept the opinion so frequently expressed that every myomatous uterus should be considered surgical. We should believe, rather, that only those myomas which are giving rise to symptoms require operation, although all women who have myomas should be examined at intervals to see that the tumors are causing no harm. It has been estimated that 30 per cent. of women with myomas die within five years if not operated on. Noble,[8] as a result of his investigation of 2,274 cases in which myomas were removed by hysterectomy, states that in 30 per cent. there were pathologic conditions present which would have led to death. We can accept these figures if the premise be changed; that is, that the lives of 30 per cent. of women who have myomas which cause symptoms would be materially shortened if the myomas were not removed. Thus we exclude that large number of women who have small myomas which are not producing symptoms.

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* From the Mayo Clinic.

[1] Meltzer, S. J.: The Factors of Safety in Animal Structure and Animal Economy, Harvey Lectures, 1916-1917, **2**, 139-169.

[2] Crile, G. W.: Acidosis and Its Dominating Influence in Surgery, Tr. Am. Surg. Assn., 1915, **33**, 419 429.

[3] Cannon, W. B.: Some Relations Between Emotions and Glands of Internal Secretion, Journal-Lancet, 1916, **36**, 685 688.

[4] Keith, A.: A New Theory of the Causation of Enterostasis, Lancet, London, 1915, **2**, 371-375.

[5] Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, The Journal A. M. A., July 31, 1915, pp. 388-394.

[6] Cullen, T. S.: Adenomyoma of the Round Ligament and Incarcerated Omentum in an Inguinal Hernia, Together Forming One Tumor, Surg., Gynec. and Obst., 1916, **22**, 258-260

[7] Clark and Miller: Personal communication to the author.

The most common conditions indicating operation are those which result from: (*a*) hemorrhage; (*b*) degeneration of the tumor (22 per cent.); (*c*) malignant disease, usually carcinoma of the body of the uterus (4 per cent.); 10 per cent. of women more than 50 years of age who come to operation for uterine myoma have complicating malignancy; (*d*) tumors causing pressure. The large majority of patients with tumors which can be felt suprapubically belong to this group, and, with or without symptoms, should be operated on. In 30 per cent. of patients with myomatous uteri causing symptoms, the ovaries and tubes are so seriously diseased as to require operation independently of the myomas.

The diagnosis of uterine myomas in about 5 per cent. of our cases was more or less incorrect. The presence of a tumor of the ovary, either benign or malignant, usually caused the failure of differentiation, especially when small fibroid nodules, of no consequence in themselves, were to be felt in the uterus.

The use of the Roentgen ray and radium in disease is interesting and in some respects encouraging. It seems to be generally agreed that the gamma rays are the responsible agents, and that there is little difference in effect whether they are produced by radium or the Roentgen ray. Radium has the advantage of containing definite and measurable quantities. It is portable and convenient, and does not require great skill in application. The Roentgen ray requires greater skill, and should be used only by the more expert. The treatment of uterine myomas by irradiation would appear to be contraindicated in degenerating and submucous tumors, where inflammatory disease of the ovaries and tubes co-exist, and in all doubtful tumors. Forssell,[9] the leading Scandinavian roentgenologist, states that he caused the disappearance of 30 per cent. of sarcomas; but he has had no four year cures. He further states that he has many cures of superficial carcinomas, but few of deep seated carcinomas. Holding, of the Memorial Cancer Institute of Cornell, agrees with these statements and adds much to our knowledge of the subject. He calls attention to the fact that irradiation has an especially destructive effect on nuclei, and the greater the nucleation of the growth the better the effect of irradiation. He states also that irradiation will often cause healing over a cancerous surface and give a fictitious appearance of cure. Colwell and Russ[10] show that irradiation acts markedly to obliterate the capillaries, perhaps because they have only the inner endothelial coat. It does not act to a great extent on the larger three-coated blood vessels. This peculiarity accounts for the splendid results obtained by irradiation in vascular and lymph tumors, and also for the extraordinary reduction of the enlarged leukemic spleen. The splenic vessels have only the inner coat. Colwell and Russ, however, show that islands of cancerous tissue cling to the larger vessels where irradiation will seldom destroy them. Certainly one would hesitate to trust to irradiation for the cure of a probably malignant change in a myomatous uterus. Our own experience in this connection is too limited to be of value, although in the modest number of cases of all sorts in which we have used these agents during the past seven years we have had a few excellent results, but unfortunately only a few in malignant disease excepting superficial lesions.

One cannot escape from the conviction that in myomatous disease, the use of radioactive substances is destructive — nonoperative, but not conservative. In the great majority, if not all, of the cases in which the myomas completely disappear under their use, the patient loses the function of the ovaries, tubes and uterus, although the nonfunctionating remnants were left in situ.

It is urged by those who are devoted to the radioactive treatment of myomas that many patients are such poor surgical risks that they cannot be operated on, and for that reason there is a wide field of usefulness for these agents. We are told that certain patients cannot be operated on because of marked secondary anemia, yet I have operated many times when the hemoglobin was under 30 and twice when it was under 20, with recovery of the patients. In any event the condition of such patients can be improved by blood transfusion, for the practical benefits of which we are indebted to Crile. Again, we are told that certain patients cannot be operated on because of high blood pressure; but unless the high blood pressure is due to cardiorenal or thyroid disease, it does not apparently add to the operative risk. We frequently operate on patients of the uncomplicated arteriosclerotic type with blood pressure from 180 to 250 or more, and we have never had a death following the operation which we could attribute to the hypertension.

Uterine myomas are rather frequently associated with goiter. The estimation of the operative risk depends on the condition of the thyroid (goiter heart). Heart lesions of any description lead to a fear of operation. The common type of lesion is mitral, beginning in the young, especially females, as an endocarditis in connection with chorea, or "inflammatory rheumatism," and without hypertension. If well compensated, this type of lesion apparently does not increase the surgical risk. Women with bleeding submucous myomas occasionally develop heart lesions of the same character with marked secondary anemia, probably due to a similar infection, and the condition is an indication for, rather than against, operation.

Hysterectomy has been and still is the operation of choice for all symptom-producing myomas, and it has much to commend it. In patients above 40 years of age, and especially those with degeneration of the tumor, this operation is indicated. Supravaginal hysterectomy has a definite technic which has been so thoroughly and carefully worked out in the past twenty years that it has become the standard operation. Preserving the cervix renders the operation easier and safer, but the cervical remnant has no function and two unfortunate propensities: First, it leaves the patient with a liability to cancer — an average liability, according to our experience, although Winter and others believe that in myomatous disease the liability is increased — and, second, it is the cause of the large majority of those sometimes troublesome vaginal discharges which go by the name of leukorrhea, due to subsequent disease of the mucous glands of the cervix. For this reason, in all cases of erosion, cystic degeneration or other disease of the cervix, we remove the cervix with the body of the uterus, provided it can be done without unduly increasing the risk of the operation.

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[8] Noble, C. P.: Fibroid Tumors of the Uterus: A Study of the Degenerations and Complications in 2,274 Consecutive Cases; Including 337 Cases of the Writers; also a Study of 4,880 Consecutive Cases in Their Relation to Carcinoma and Sarcoma of the Uterus, Jour. Obst. and Gynec., Brit. Emp., 1906, **10**, 436-477; id., The Journal A. M. A., Dec. 8, 1906, p. 1881-1886.

[9] Forssell: Personal communication to the author.

[10] Colwell, H. A., and Russ, S.: The Effects of X-Rays upon Various Organic Substances, Arch. Middlesex Hosp., London, 1911, **27**, 63-70.

There has been a great deal of difference of opinion as to whether or not the ovaries should be saved. It would seem, however, that to remove the normal ovaries merely because we are doing a hysterectomy is an unwarranted mutilation. Norris and Clark's[11] investigations show that saving the ovaries materially reduces the unpleasant physical and nervous effects which often follow hysterectomy. That the ovaries have an internal secretion as well as the function of ovulation is well known, and in the young this internal secretion, even from ovaries in which the function of ovulation never occurs, causes at least development of the feminine characteristics.

The internal secretion of the ovary and testicle also has to do with the closure of the epiphyseal lines in adolescence; and removal of these organs in the young leads to late closure of the epiphyseal lines and increased growth of the long bones which, in connection with a hyperactive pituitary secretion, produce the tall spindle type of giantism. That the function of the ovaries is entirely independent of nerve supply is shown by the experience of Tuffier,[12] who, in operating for pus tubes, removes the ovaries and tubes, sterilizes the ovary either by passing it through an alcohol flame or by dipping it in tincture of iodin, and implants it in the abdominal wound just outside the peritoneum. For a few months after operation the patient shows marked evidence of beginning menopause; in from four to six months these symptoms disappear, and menstruation reappears and continues in a normal manner. Only autografts, however, have this property; in Tuffier's experience homografting and heterografting of ovaries was a failure. Beatson[13] of Glasgow found that in some hopeless cancers of the breast, removal of the ovaries produced an extraordinary effect on the cancer, several patients of this description being apparently cured. Beatson is a most distinguished as well as conservative surgeon, and his results, which have been duplicated by others, well show the remarkable effect of stopping the internal secretion of the ovaries.

We have been able to save one ovary in more than 50 per cent., and both ovaries in more than 25 per cent. of all the hysterectomies we have done for myomatous disease. From the standpoint of conservation of the ovary, hysterectomy is preferable to radium and the Roentgen ray, since when thus effectively treated the ovaries are destroyed. Acknowledging, as we must, the great benefits which have accrued to woman through hysterectomy, we cannot blind ourselves to those physical and nervous changes which sometimes follow, especially in younger women. It would be interesting to know what percentage of divorces have had their origin in this operation. It is not that hysterectomized women become coarse, although they often gain in weight, but certain physical and nervous changes take place which may result in unhappiness. The noblest instinct of woman, that of motherhood, is at hazard. Because of the ease and the surgical certainty of hysterectomy, have we not sometimes too quickly advised and practiced a mutilating operation? I regret to say that we now occasionally see a young woman in whom a condition equivalent to hysterectomy with removal of both ovaries has been brought about by radium or the Roentgen ray. To one who takes a view of the whole situation, myomectomy must present itself as the only truly conservative procedure, and becomes the operation of choice for a large number of patients, provided always it can be done without an increase of risk and with reasonable certainty as to cure.

Myomectomy for myomas of the uterus has not been a popular operation. It has been urged against it, first, that the mortality of the procedure itself is higher than that of hysterectomy, and, second, that more tumors would develop and necessitate hysterectomy later. As to the mortality: From Jan. 1, 1891, to Sept. 1, 1916, we have done 504 consecutive myomectomies with four deaths in the hospital, a mortality of 0.8 per cent. Counting as a death from the operation every patient who died in the hospital following myomectomy, without regard to cause or length of time after operation, certainly this mortality compares favorably with that of hysterectomy. As to the second objection, only five patients required hysterectomy later for any cause.

It must be taken into consideration, however, that the patients whom we subjected to myomectomy were in a way selected cases. Myomectomy was not often done in those over 40, and it was not frequently done after the age of 35 unless the conditions were such as to make it safe. On the contrary, it was done for the majority of patients with myomas who were under 35 years of age, and for practically all under 30 years. As the tumors which require operation are much more frequent after the fortieth year, it can be readily seen that we have been conservative in choosing cases for myomectomy.

Myomectomy is a more difficult operation than hysterectomy, because the technic must be varied according to the character, situation, size and number of tumors. But myomectomy does not present greater difficulties than can be easily mastered by the experienced surgeon. I have previously described[14] the technic of this operation, and have found it necessary to make but little change since.

Fourteen patients were pregnant at the time the myomectomy was performed, and the majority went to term and were delivered of living children. When it is considered that in the latter group the tumors were degenerating with acute symptoms, and that in a large proportion indications of spontaneous emptying of the uterus were present at the time of the operation, it is remarkable that the disturbance so frequently quieted down without premature expulsion of the child. In not a single instance have we been obliged to do hysterectomy on the pregnant myomatous uterus with a nonviable child.

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[11] Clark, J. G., and Norris, C. C.: Conservative Surgery of the Pelvic Organs in Cases of Pelvic Peritonitis and of Uterine Myomata, with the Review of the Immediate and After-Results of 299 Cases, Surg., Gynec. and Obst., 1910, **11**, 398-413.

[12] Tuffier: Personal observation, Mayo, W. J.: A Visit to Some of the Hospitals and Surgical Clinics of France, Northwest. Lancet, 1911, **31**, 405-411.

[13] Beatson, G. T.: On the Treatment of Inoperable Cases of Carcinoma of the Mamma: Suggestions for a New Method of Treatment, with Illustrative Cases, Lancet, London, 1896, **2**, 104-107; 162-165.

[14] Mayo, W. J.: Some Observations on the Operation of Abdominal Myomectomy for Myomata of the Uterus, Surg., Gynec. and Obst., 1911, **12**, 97-102.

Twenty-four of our 504 myomectomized patients have had living children since the operation, and seven have had two or more. Thirty-eight living children to date following myomectomy is a strong argument for the conservative operation. Five others are normally pregnant now.

From this investigation as to actual results covering a period of twenty-five years, it is evident that the operation of myomectomy has not received the attention it merits. We should bend every effort to improve the technic and further the indications for this operation, the only truly conservative procedure for myomas of the uterus, an operation which removes the tumor and leaves the patient as she would have been had she never possessed it.

THE FUNCTIONAL CAPACITY OF THE STOMACH

AS A BASIS FOR JUDGING THE VALUE OF ANY METHOD OF SURGICAL TREATMENT *

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The value of any treatment, especially when it involves surgical methods, is not based at the present day entirely on anatomic results. Anatomic structures, whether conforming to the normal or resultant from new relations produced during operation, are of value only in terms of physiologic function. The nearer the functional result approaches the normal after operation, the better has been the method of treatment; and the more closely the functions are carried out along normal physiologic paths, the less disturbance is manifested in the complaints of the patient until the body economy becomes accustomed to the new physiology.

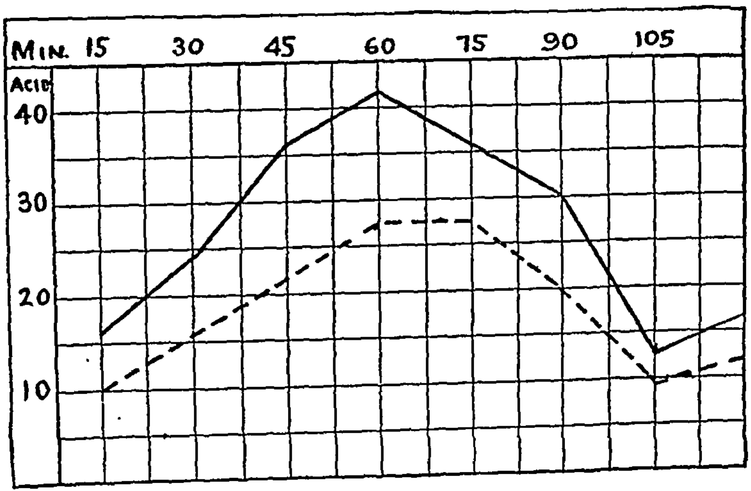

Fig. 1.—Fractional test meal, Case 1: solid line, total acidity; broken line, free acidity.

This paper will outline the methods which we have been using, which are capable of reflecting scientifically and accurately the state of the various functions of the stomach at any given moment. The picture obtained by correlation of the various facts so obtained will in turn reflect the total physiologic effort of the gastric function. It will be shown, also, that these methods are applicable after any operative procedure, and when so employed give reliable data on which the functional result of the operative procedure can be judged.[1] In the latter aspect these methods will find their chief value.

These methods combine some tests in common use for many years, together with several which, although known for many years, have only recently assumed the prominence which they should have. In a general way these have to do with the digestive and motor functions of the stomach.

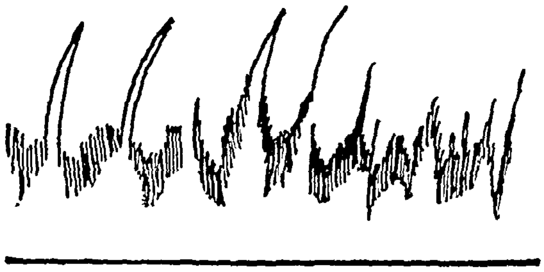

Fig. 2.—Kymographic record, Case 1.

In estimating the digestive activity of the stomach, the knowledge obtained from any one test meal has not satisfied us. On this service there has been developed a routine which is designed to follow the ordinary habits of most normal persons and which furnishes, to our mind, a correct picture of this function.

The cycle is begun in the morning. The content of the stomach found after the night's rest is extracted. Immediately thereafter a test breakfast is given consisting of a cup of tea (6 ounces) and one roll (Ewald test breakfast). The residue remaining at the end of one hour's time is extracted. The midday meal of the same day consists of the Riegel[2] test meal. Six hours later the residue is extracted. At each of these extractions the attempt is made to empty the stomach completely.

The residues obtained are examined grossly, chemically and microscopically, and the facts are tabulated in accordance with the charts shown in the case reports following.

An entire digestive period is then studied in accordance with the fractional method lately emphasized by Rehfuss. This is necessary as the information obtained in the ordinary test meals reflects the conditions in the stomach at any given moment arbitrarily chosen. The fractional method amplifies this by furnishing information continuously over an entire digestive period, regarding the character of the secretions of the stomach and the length of the period of secretion, as compared with digestion and with the emptying capacity of the stomach. Information is also obtainable as to whether or not duodenal or small intestinal contents are regurgitated backward into the stomach at any stage of the digestive period; and, when this does occur, the relative time of its appearance can be noted and any influence which this may have on the digestive activity can be observed.

It can be readily appreciated that, of all these tests, the most important is the study of an entire digestive period by means of the fractional method. The

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*From the surgical service of Dr. A. A. Berg, Mount Sinai Hospital.

[1] Wilensky and Crohn: Tr. Am. Gastro-Enterol. Assn., May, 1916; Am. Jour. Med. Sc., to be published.

[2] We use a modified Riegel test meal consisting of a plate of bouillon, about 200 gm. of white meat of chicken, about 150 gm. of mashed potato, and two slices of white bread.

results of this method can be plotted graphically, and a curve is then obtained giving a visual description of a period with which subsequent examinations can be compared.

The motor function of the stomach is next investigated. For this purpose two methods are available: (a) the Roentgen ray examination of the contrast meal filled stomach, and (b) the kymographic method recently emphasized in purely physiologic work by Cannon and his collaborators[3] and by Carlson and his associates.[4]

In the aspect discussed in this paper, no attempt is made to indicate the relative value of the Roentgen ray as a method of precision in the diagnosis of gastric or duodenal lesions. In this communication only those facts made evident by Roentgen ray study which have a bearing on the function of the musculature of the stomach wall will be indicated.

The smooth muscle planes of the stomach are distributed, first as a churning and propulsive mechanism in the wall of the stomach, and, secondly, as a valve formation at both the entrance to, and the exit from, the stomach—the cardiac and pyloric sphincters. Physiologically the more important of the latter two is the pylorus. The information obtainable by means of the Roentgen ray in regard to these three parts of the motor function can be summarized thus:

1. *The Action of the Cardia.*—No abnormality in function is usually found unless some definite organic lesion is present directly at the sphincter or so closely adjacent as to form a source of irritation.

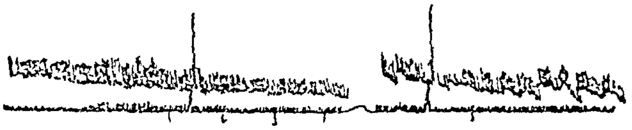

Fig. 3.—Kymographic record, Case 2.

2. *The Action of the Musculature in the Wall of the Stomach.*—This includes the character of the individual contractions and especially the coordination of these in the total muscular effort; the tone of the muscle, that is, the manner in which the stomach contents are grasped; the segmentation of the stomach into fundus and antral portions, and the rapidity with which the food is passed into the pyloric chamber. The time of total emptying of the stomach is also noted.

3. *The Action of the Pylorus.*—A normally acting sphincter at the exit from the stomach is imperative for a normal physiology. This has become evident as a result of some studies which we have made on stomachs subjected to resection with and without retention of the pylorus.

The technic employed in obtaining kymographic observations follows closely that described by Cannon and Carlson. Observations are made on a fasting stomach. In certain cases, however, it may be of advantage to have these tests made on the stomach containing food.

Information from this source can be summarized thus, according as it concerns:

1. The tonus of the musculature.
2. The presence or absence of tonus contractions.
3. The presence or absence of hunger contractions.
4. The muscular coordination.
5. The intragastric pressures and their variations.

Information obtainable by the Roentgen ray is complementary to that obtained by kymographic methods. The two together give adequate conceptions of the action of the stomach musculature.

The practical application of these methods is shown in the accompanying case reports.

REPORT OF CASES

Case 1.—*Record of a case with gastric symptoms in which no gastric lesion was demonstrated at operation.*—Hospital No. 160266. There was a six months' history of epigastric *pain occurring after meals with frequent vomiting.* There was a loss of 35 pounds in weight. The physical examination was negative except for a slight amount of tenderness in the epigastrium. The facts revealed by the functional study are given in Table 1 and Figures 2 and 3. Roentgenoscopy revealed active peristalsis, good motility, and the stomach empty in four hours.

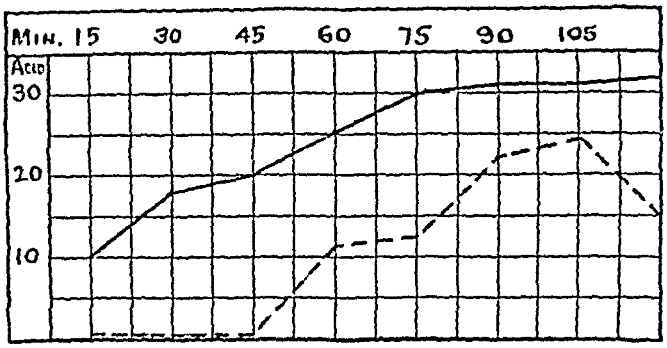

Fig. 4.—Fractional test meal, Case 3: solid line, total acidity; broken line, free acidity.

TABLE 1.—STOMACH ANALYSES IN CASE 1, DECEMBER, 1915

	Fasting Content	Ewald	Riegel
Quantity	None	40 c.c	None
Appearance		Brown	
Food residue		Slight	
Lactic acid		0	
Blood		0	
Free acid		35	
Total acid		65	
Microscopic		Negative	

These examinations showed that the functions of this patient's stomach were within the normal ranges. It was possible to say definitely that there was no functional disturbance, and it was not surprising when the laparotomy showed no anatomic lesion of the stomach or duodenum.

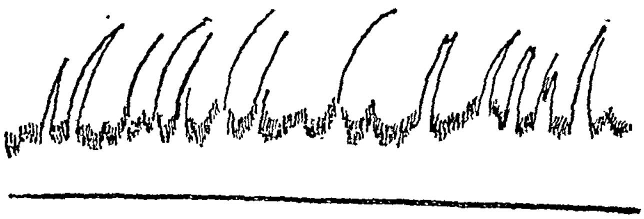

Fig. 5.—Kymographic record, Case 3.

Case 2.—*Case with gastric symptoms and demonstrable lesion at operation.*—A middle aged man for two years had had epigastric *pain occurring after meals.* The pain was also especially intense during the night. Vomiting had never occurred. There was a loss of 50 pounds *in weight.* Here, too, the physical examination yielded nothing but a slight amount of epigastric tenderness. The results of the functional studies are given in Table 2 and Figure 3. Roentgenoscopy gave evidence of an incomplete stenosis of the *pylorus with marked* atony and gastrectasia.

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[3] Cannon, and Cannon and Washburn: Am. Jour. Physiol., 1911 and 1912; Harvey Lecture, Dec. 6, 1911.

[4] Carlson, Carlson and Ginsburg, Patterson, Luckhardt and others: Am. Jour. Physiol., 1912, 1913, 1914 and 1915.

The functions of this man's stomach had been so deranged that it was not possible to perform some of the tests, owing to his immediate vomiting (fractional method and Riegel meal). The clinical diagnosis was incomplete pyloric stenosis with gastrectasia. On several occasions the kymographic tracing demonstrated an atonic condition, and when at operation a large crateriform ulcer was found on the posterior surface and lesser curvature adherent to the underlying pancreas, this was immediately explained. There was no true pyloric stenosis. The true conception was that of a paralytic condition induced by the presence of this large inflammatory lesion in the body of the stomach. This, too, explained why the man had not vomited before he came to the hospital.

TABLE 2.—STOMACH ANALYSES IN CASE 2, MARCH, 1916

	Fasting Content	Ewald	Riegel
Quantity	500-1,000 c.c.	420-1,000 c.c	Not made
Appearance	Yellow	Yellow	
Food residue	Large	Large	
Lactic acid	0	0	
Blood	0	0	
Free acid........	....	22	
Total acid	....	37	
Microscopic	Sarcinae, raisins and old food detritus.		

TABLE 3.—STOMACH ANALYSES IN CASE 3, JULY, 1915

	Fasting Content	Ewald	Riegel
Quantity	27 c.c.	150 c.c.	60 c.c.
Appearance	Clear fluid	Light brown	Brown
Food residue	0	Little	0
Lactic acid	0	0	0
Blood	0	0	0
Free acid........	13	15	0
Total acid	30	43	27
Microscopic	Negative	Negative	Negative

Case 3.—*Functional study after operation with full recovery.*—Hospital No. 155381. A man, aged 34, had been operated on for an ulcer near the pyloric sphincter, a gastro-enterostomy having been made by suture with unilateral pyloric exclusion by the string method. The results of the study of the functions of the stomach made after full convalescence are given in Table 3 and Figures 4 and 5. Roentgenoscopy revealed good peristalsis, the pylorus (exclusion) closed, the stoma patent and efficient, and the stomach empty in four hours.

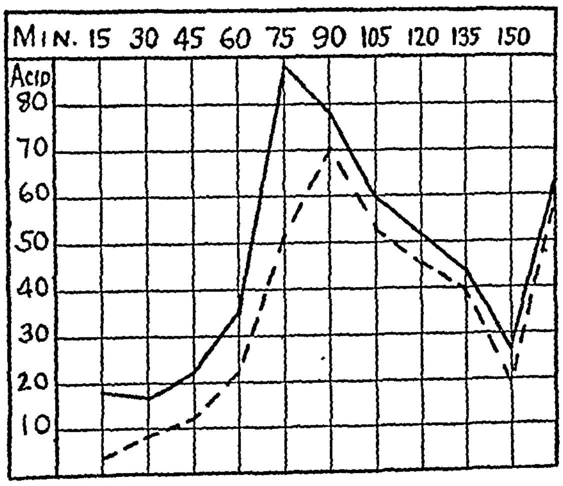

Fig. 6.—Fractional test meal, Case 4: solid line, total acidity; broken line, free acidity.

Symptomatically the patient was cured; physiologically the functions were within the normal ranges; the result, therefore, is excellent from every point of view.

Case 4.—*The functional result after operation with a development of postoperative symptoms.*—Hospital No. 160857.—A man had had an ulcer in the first portion of the duodenum for which the same surgical treatment had been carried out as in Case 3. Some time later the patient developed a recurrence of some of his former symptoms, and when the functions of his stomach were then studied, the results given in Table 4 and Figures 6 and 7 were obtained. Roentgenoscopy revealed fair peristalsis, the pylorus open (exclusion), the stoma patent, and the stomach empty in six hours.

Aside from the symptomatic result, the findings show that the stomach functions are not what they should be. The cause for this patient's postoperative symptoms may not be a recurrence of the original lesion or a reappearance of new similar lesions, but may be due entirely to the disturbed physiology. As pointed out in a former paper[5] these physiologic disturbances are prolific in the production of postoperative symptoms.

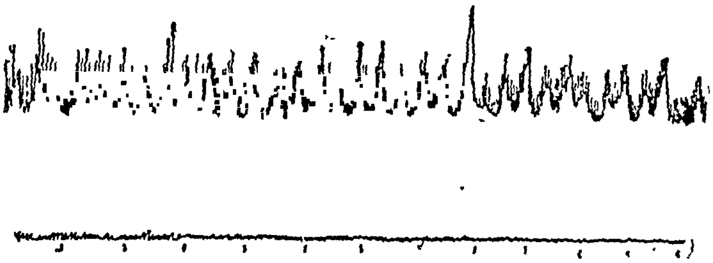

Fig. 7.—Kymographic record, Case 4.

COMMENT

These are the methods used in the study of those cases reported at the meeting of the American Gastro-Enterological Association in May, 1916. The cases cited here are to be considered only as examples, and they demonstrate the value and limitations of these methods in determining the value of any form of treatment. Their application will be most important in those gastric cases treated by surgical methods in which a recurrence of some or all of the anteoperative symptoms occur or in which new postoperative symptoms develop. These determinations then form reliable criteria on which a judgment can be made as to whether the postoperative symptoms originate on a functional or anatomic basis. Finally, when such judgment is made, these methods in the functional cases form reliable guides for the rational treatment of the symptoms, and in turn form trustworthy methods for judging the good or bad effect of the particular treatment used.

TABLE 4.—STOMACH ANALYSES IN CASE 4, NOVEMBER, 1916

	Fasting Content	Ewald	Riegel
Quantity	60 c.c.	200 c.c.	60 c.c.
Appearance	Light brown	Light brown	Light brown
Food residue	None	Moderate	Little
Lactic acid	0	0	0
Blood	0	0	0
Free acid........	0	15	0
Total acid	16	50	16
Microscopic	Negative	Negative	Negative

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[5] Wilensky, A. O.: Am. Jour. Med. Sc., to be published; Tr. Med. Soc. County of New York, Med. Rec., New York, 1916, **90**, 389.

Community Nurses.—The experience in 2,629 communities scattered over the entire nation has been that whenever a public health or community nurse goes into a community she is opposed or unaided by certain physicians. The experience in the same 2,629 communities is that sooner or later the doctors realize that the nurse can do for their communities what they themselves are unable to do. She can carry education into the very souls of people. Education, after all, is the solution of all our public health problems. The physician who opposes or refuses to help the public health nurse is fighting a losing fight against public health. You may not feel that way about it now, but you will.—*Health News*, Illinois.

A HEALTH EXAMINATION AT SCHOOL ENTRANCE *

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In 1876, Dr. Clarence J. Blake of Boston presented a paper before the International Medical Congress at Philadelphia in which he stated clearly and emphatically the need of medical inspection of schoolchildren; but for nearly twenty years this wise recommendation was ignored, the health of schoolchildren was neglected, school diseases were uncontrolled, epidemics played havoc with school attendance, many children died from preventable causes, and many more suffered from physical defects and insanitary conditions. It was not until a series of epidemics had occurred in Boston that, finally, in 1894, Boston established a regular system of medical inspection for the public schools. Slowly other cities followed until now nearly all of the large cities and many of the states require health inspection to a greater or less degree.

During the last seven or eight years the need for health inspection has been specially recognized, school nurses have been employed with excellent results in many cities, the need for caring for the teeth has been recognized and dental clinics established, and the importance of mental hygiene and the hygiene of instruction is now being emphasized. In some places remarkable success has resulted from the methods of health inspection adopted. The excellent results of this movement have been clearly shown in the valuable summary recently published by Drs. Gulick and Ayers,[1] and widespread interest was demonstrated at the International Congress on School Hygiene held in Buffalo in 1913.

The work, however, is still far from being adequate even in the cities in which the best plans are in operation, and the inefficiency of the medical inspection in many places has given critics an opportunity to make serious charges against the whole plan. Many declare that no good has come from it, and that, in many cases, harm has resulted. Careful students of the subject like Dr. Gulick have noticed the serious defects and pointed out the need for more adequate provision for such inspection.

The time has come when if health inspection is to succeed it must be carried farther and be made more adequate. The concrete methods by which this may be done can be devised by those actually engaged in the work; and more thorough-going and satisfactory methods should be adopted so far as local conditions will permit. One general need should be emphasized at the present time: If health inspection is to be fully successful in any community, the support of the general public and the cooperation of teachers and parents is necessary. One cannot expect the best results when teachers do not know that there are medical inspectors, or when parents refuse to permit their children to be inspected. The next step in health inspection may well be an attempt to gain intelligent cooperation from parents and teachers.

The problem of gaining this cooperation is a difficult one, and the process is likely to be slow. Teachers should have a different training, parents must be educated; but the beginning of such education, I believe, may well be made at the present time, and the method I would suggest is that of a thoroughgoing physical and mental examination of each pupil on entering school life. This examination should be conducted by the health inspector with the aid of the teachers and one or both of the child's parents.

[Under the head of "Preschool Life and the School Beginner," the author discussed Dr. Thiele's[3] biologic study of school beginners. Thiele sent a questionnaire to the parents of 5,538 children in the public schools at Chemnitz. He endeavored to determine the influence of family, heredity, disease, etc., on children entering school at the age of 6; 16.81 per cent. of the boys and 23.27 per cent. of the girls were only children; 26.05 per cent. of the boys and 11.21 per cent. of the girls had more than six brothers and sisters. Bohannon and Neter emphasize the significance of being an only child. Thiele finds this condition related to disease. Only children are better protected from contagion and are better nourished. They learn to walk and talk more quickly than others and are more likely to be precocious.

The author then considered the age and development of the child on entering school. The time when the child should enter school depends on its physiologic age and the relation of the home to the school. Beik[4] has shown what is the normal physiologic age for school entrance. The condition of the home may be such that the child may be better off attending school, even if below the proper age. Winch[5] finds that there is little gain in having children enter school before the age of 5 or 6 years. Ayers[6] found that children entering school at advanced ages made slightly more rapid progress than those beginning earlier. Steinhaus[7] holds that the completed sixth year is the best time for entering school. Camerer, Monti, Lange and Gundobin find that the majority of boys at the completion of the sixth year are 110 cm. in height, and that the rate of growth in the sixth year is 5 cm. Girls average 1 cm. smaller. Quirsfeld found the height of children entering school to vary from 12 to 27 kg.; 75.4 per cent. of the children weighed 19.5 kg. Gundobin found the average circumference of the head for boys of 5 years to be 50.1 cm., and for girls the same, while the average for boys of 6 was 50.8 and for girls 49.4. Monti found the average circumference of 51 cm. Steinhaus suggests the following standards: The height of children on entering school should be at least 110 cm., weight 18.20 kg., chest circumference from 52 to 54 cm., and head circumference from 49.5 to 50.5 at the end of the completed sixth year. Selter shows that children entering the gymnasium are from 4 to 6 cm. taller than children entering the people's schools. The consensus of opinion is that children should not attend school before the completed sixth year, and that children who are imperfectly developed, weak or diseased should be excused from entering school at that time. Only those children who have sufficient strength and development to make them capable of standing the confinement and doing their work without injury to health should be admitted. While further study should be made and standards established for different types, the following will serve as minima for children in this country:

1. The height should be at least 115 cm.
2. The weight should be at least 20 kg.
3. The chest circumference should be at least 53 cm.
4. Children on entering school should have all four of the sixth-year molars.
5. Standards should be the same at this age for boys and girls, although for girls a little less may be permitted regarding height and weight. The presence of all four sixth-year molars should be required of both sexes and for all types.]

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* An address delivered on acceptance of the office of president of the Massachusetts Society for Mental Hygiene. On account of lack of space, considerable statistical matter has been omitted which will appear in the reprints, copies of which can be obtained on application to the Massachusetts Society for Mental Hygiene, 313 Ford Building, Boston. A more detailed paper on the same subject can be found also in the Pedagogical Seminary, 1914, **21**, 219.

[1] Gulick, L. H., and Ayers, L. P.: Medical Inspection of Schools, New York, Survey Associates, 1913, p. 224.

[3] Thiele, A.: Versuch einer Biologie der Schulanfänger, Ztschr. f. Schulgsndhtspflg., 1913, **26**, 377, 827.

[4] Beik, A. K.: Physiological Age and School Entrance, Ped. Sem., 1913, **20**, 277.

[5] Winch, W. H.: When Should a Child Begin School? Educ. Psy. Monographs, Baltimore, Warwick & York, 1911, p. 98.

[6] Ayers, L. P.: The Relation Between Entering Age and Subsequent Progress Among Schoolchildren, Education, 1912, **32**, 325; Medical Inspection of Schools, Monroe's Cyclopedia of Education, New York, the Macmillan Company, 1913, **4**, 182.

[7] Steinhaus, F., et al.: Welche Anforderungen sind in körperlicher und geistiger Beziehung an den Schulneuling zu stellen? Ztschr. f. Schulgsndhtspflg., 1913, **26**, 16, supplement.

SCOPE OF THE EXAMINATION

The suggestions of the German physicians in regard to school entrance are excellent, but in my opinion we should go much farther than this. The following things seem desirable:

There should be a physical examination participated in by the teachers and parents as well as by the school physician, and this examination should include the following: (1) a test of physiologic age; (2) a test of psychologic age; (3) a test of the general health conditions, and (4) a history of the morbidity of the individual child.

1. The test of physiologic age may at first be confined to the things already mentioned; but probably in the near future, after further studies of the biology of the school beginner have been made, it will be possible to note other important conditions and determine more accurately the stages of physiologic development. Roentgenograms showing the development of the epiphyses of the bones, and tests of the range of the voice, and of the development of the eye and other organs may probably be included.

Studies at Clark University as well as elsewhere have shown the advantages of physical tests not usually made, such as those for determining the vital index, that is, the lung capacity divided by the weight; and the cardiovascular index, that is, the systolic blood pressure multiplied by the pulse, plus the diastolic blood pressure multiplied by the pulse, to show the total cardiovascular energy expended;[8] tests of the ability to form and break down conditioned reflexes, by methods similar to those of the Russian school of Pawlow; tests of motor ability,[9] and studies of the physical type of the individual,[10] to determine not only whether one is of the carnivorous, herbivorous or neutral type, but also, as far as possible, to show the general type as regards growth, and the like.

2. Especially important is the determination of the child's stage of mental development at the beginning of school life. This is important not merely to determine whether or not the child is fitted to enter school, but also to give a record which may help the teacher and serve for future reference. Most important is observation of the child's behavior, especially on the playground. An attempt should be made to learn something of the child's character and disposition. A helpful plan would be to have a large playroom with many toys and simple pieces of apparatus for physical exercise, and to have all the children left in this room when not passing the special examination. A competent observer placed in this room would make records of the spontaneous behavior of each child.

Something in the way of special tests may be given. These may be along the line of investigations made by President Hall, Binet, Yerkes, and many more recent workers, including a test of the contents of the children's minds, their interests, as they can be roughly determined, their ability in using the knowledge they have, etc.

Something like the Binet-Simon tests for the sixth year can be used: distinguishing right from left; finding obvious omissions in pictures; counting thirteen pennies; some simple tests of comprehension, like answering the question, "What's the thing to do if it is raining when you start to school"; answering the question, "Is it morning or afternoon?" or similar problems.

The results of these tests should be controlled by the direct observation of the children at the time of the examination, especially, as already suggested, observation of their behavior in spontaneous play; and by reports of parents in regard to the behavior of the children at home, their knowledge, their interests, their ability to get on with other children, their moral character and disposition, their faults, their virtues, and the like.

The tests of psychologic age will naturally be supplemented by other tests, especially perhaps of motor ability and the ability to form practical judgments in new situations.

Especially important is the opportunity given by the examination at school entrance to determine the peculiar children — the various classes who are now called psychopathic personalities, defective delinquents, and the like, and the children who are precocious and supernormal, the especially bright children, as well as those who are dull and subnormal. The record of such peculiarities is of the greatest importance for the immediate adjustment of school work and for future diagnosis of the defective and abnormal.

In the tests of psychologic age, also, attention may well be given to habits of observation, of attention, association and the like, calling the attention of both parents and teachers to habits of health as of fundamental importance. This physiologic examination should include the determination as far as possible of the mental type to which the individual belongs.

Probably less can be accomplished in the way of determination of the child's type of imagery than many psychologists have supposed; but still more important than this is probably the determination of the learning type. Although no adequate experimental studies have been made, so far as I am aware, observation seems to show pretty clearly that there are two marked types of learners, one type which learns easily by instruction, by hearing and seeing what others do, and from definite directions and demonstration, that is, a type which learns easily by the usual didactic methods of the school; and, on the other hand, another type which learns chiefly by doing, and this by one's own method. The ordinary methods of the school, however, are usually adapted to the child who learns by hearing, by instruction; and the individual of the doing type is at great disadvantage and often appears dull. It is of the utmost importance that these two types be distinguished as early in school life as possible, and the beginning of diagnosis should be at the entrance of school life.

The test for psychologic age can be carried much farther and be made much more adequate when more careful investigations have been made bearing on this subject; for example, after the promising investigations by Krasnogorski, and others by Pawlow's methods have been perfected, it probably will be desirable to make tests of the conditioned reflexes, memory reflexes and the like. Tests of association, of the various learning types, of voluntary action, inhibition, and of mental attitudes may all be ultimately included.

3. The test of the health should be primarily to determine the general physiologic condition, and also, more concretely, the condition of the teeth, the throat and the nasopharynx, especially noting the condition of the tonsils, the presence or absence of adenoids, the

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[8] Clerk, F. E.: A Study of the Cardiovascular Index in Elementary School Children, Ped. Sem., 1916, **23**, 135.

[9] Douglas, A. A., and Dealey, W. L.: Micromotion Studies Applied to Education, Ped. Sem., 1916, **23**, 241.

[10] Lewis, C. B.: Adolescent Physical Types, Ped. Sem., 1916, **23**, 295.

occlusion of the teeth, and the condition of the eyes, ears, etc. When the full importance of health as a primary aim in early education is understood, then time will be taken in each individual case for every desirable test, whether it be the Wassermann test, the von Pirquet test, or something else, or all together.

4. The morbidity history of all diseases that the child has had should be recorded as far as possible, and it especially should be noted whether or not the child has had rickets, scrofula or any form of tuberculosis, convulsions, measles, scarlet fever, whooping cough, diphtheria, chicken pox, mumps, etc., and such a record for each child should be kept in the school or by the medical inspector or by the board of health.

This morbidity test should include also a very careful noting of bad habits, not only habits obviously detrimental to health, biting the finger nails, sucking the lips, placing the tongue in abnormal positions, and other habits which tend to produce dental defects, but also any bad habits as regards cleanliness, chewing the food, digestion, excretion, and bad habits of attention, association and the like.

By such observations and tests it is possible not only to determine whether children are fitted to do the work of the school, but also to find data in regard to the children that will enable the teachers to adapt in large degree the occupations of the school to the character of the individual pupils. If children cannot pass tests like those mentioned, and if they show considerable mental weakness and inability to do the simple tasks which are likely to be required in the first grade of the school, they should be kept out of school for another year, and placed in kindergartens or the like, according to local conditions.

SIGNIFICANCE OF THE EXAMINATION

The entrance on school life presents an opportunity for hygiene which has been strangely neglected. An examination of school beginners as regards physiologic development and general physical condition has vast possibilities. It gives opportunity not only to determine whether a child is in condition to do the school work without injury to health, but also to educate the parents; and, further, it gives opportunity to have the child put as far as possible into good physical condition. We have already recognized the right of the state in matters pertaining to health. We insist, for example, that a child shall be vaccinated before entering school. We insist that a child shall not come to school with a contagious disease. There is a feeling, however, on the part of many, that to go beyond this is an interference with individual rights and the prerogatives of the home. This is a survival of the old idea that the function of hygiene is negative. With the new view of the positive function of hygiene, there seems to be equally good reason for requiring such a condition of health and development as will enable the pupil to do the work of the school efficiently and without injury to health.

Plenty of time should be given for this examination. It should be in the nature of a consultation of experts. The school physician should be not only a medical expert, but also an expert in school hygiene. The teacher, if with some professional training, is to some extent an expert in school work. The parents, having watched and trained their own children, are in a certain sense experts in regard to them.

Here in this problem of school entrance is to be found, if not the key, at least the strategic point of attack for many of the pressing practical problems of school education today. Such a thoroughgoing examination conducted by the school physician, parents and teacher would be of great value pedagogically as well as hygienically.

For example, it is pointed out by the wise that a better cooperation between the home and the school is necessary. Here is the place to begin cooperation. In a tactful examination such as that mentioned, if made by fairly intelligent school physicians and teachers, cooperation of parents could be gained in a natural way. By consulting the parents in this examination in regard to the peculiarities of their child, the diseases the child has had, and his general condition of health, the expert character of the parent would be recognized and an attitude of cooperation would easily be aroused.

This problem is of fundamental importance, because it is only by cooperation of the home and the school that we can satisfactorily solve the problems of adapting school work to the capacities of the children, of proper care for their health, and of vocational guidance.

The evil of the present lack of cooperation between the home and the school has often been pointed out, and it is illustrated by the attitude of teachers as well as that of parents. When a subject like overpressure, for example, is discussed, we teachers are apt to say that the conditions in the home are responsible; that it is the work children do before coming to school which causes overpressure. The home, not the school, is to blame — as if that settled anything. When there is illness or inefficiency among schoolchildren, again it is the home we blame: conditions are more hygienic in the school than in the home. Such shifting of responsibility is easy; and all this is largely true. But reflect for a moment on a very obvious truth: Most of these parents a few years ago were pupils in the schools. In twenty-five years, children entering school now will be the parents.

Again we say the parents need to be educated. This is the burden of much of the pedagogic literature of today. The common lamentation is that we cannot solve the problems of the school until the parents are better educated. True enough; but how shall we begin to educate them? A better way could hardly be devised than an entrance examination for the children in which the parents could participate. Such an examination would educate the parents not merely because physician and teacher would have opportunity to give advice, but far more because parents would learn by means of it that school work is not an occupation to be taken up lightly and dropped again when something lucrative is offered for the children, but a serious matter, requiring health, and a degree of physical and mental development. Entrance on school life is too easy. Parents would prize the opportunities and privileges of the school more if it were harder to obtain them. Thus the time and inconvenience required for the examination would be a distinct advantage because an important means of educating the parents.

One great cause of the inefficiency in school work and the lack of adaptation of school occupations to individual capacity and health is the fact that we do not begin right. An examination like that described would be a good beginning; it would go far toward developing the right attitude in parents toward the school; it would acquaint the teacher with important facts in regard to the character and home conditions of the pupils; it would give the physician important facts in regard to earlier development and the morbidity history of the pupils; and after more biologic studies of the school beginner have been made, it would enable the physician and teacher to determine both the physiologic type and the learning type to which the individual child belongs. And, finally, it would change the attitude of the teacher toward the parents, in many cases giving them a wholesome respect for the expert character of the parents as regards their own children, and make it far easier for both parents and teachers to cooperate.

Another great problem is that of retardation. Among the causes of retardation recognized by Professor Strayer[11] are "illness extending over a long period, backwardness or mental deficiency, the lack of a school course adjusted to the needs of varying abilities." The difficulties mentioned by Dr. Strayer — illness, mental deficiency and ill adjusted school course — should be attacked at the outset in the light of a thorough study of the raw material when brought to the school. Again the money cost due to the repeaters has often been pointed out. The estimates of this have perhaps been exaggerated, but the cost in any case is enormous, and the waste of time and energy great. A large part of this could be saved by admission tests and by proper grading, and the saving of money would probably more than make up for the added expense of this examination.

One of the reasons for retardation is the fact that children enter school prematurely or in such imperfect physical or mental condition that they cannot do the work of the school. Failure occurs from the first, and the pupil handicapped both physically and mentally is turned back at the close of the year to repeat the same dreary routine. The place to begin the prevention of retardation is at the entrance of school life.

The next great educational problem concerns the elimination of pupils. Why do pupils drop out of school before their course is completed? It is usually because they do not succeed in school work, or because they are more interested in something else, or because the parents do not cooperate with the teacher in trying to keep them in the school. An admission examination of the thoroughgoing kind would not only prevent those who cannot succeed in school work from entering, and make better adjustment possible, thus averting many heartbreaking failures among the pupils, and much futile worry and effort among the teachers; but, as already suggested, if it were harder to enter school, parents would not esteem its privileges so lightly or be so ready to let their children leave it.

Again, take the group of problems included under the word efficiency. During the last few years this has become a word to conjure with. The term is more or less abhorent to the scientist, because, on the one hand, it often stands for a superficial view of the great problems of life and work; on the other, because many of the principles of this new science of business and industry were worked out twenty-five years ago by Mosso and others in the laboratory, and then ignored because business was ignorant of science. But the problems involved are of vital importance; and it is well that they have been put in the terms of the shop and the counting room and thus made to appeal to those who have a business apperception.

What, however, could be more inefficient than our present haphazard methods of beginning school work without determining whether or not pupils are fit for school occupations? Why should public money be spent in trying to teach those who can profit little by instruction or who are likely to be injured by it? The teachers are also handicapped by the presence of such children, and it largely thwarts the purpose of school education. From the point of view of common sense and efficiency, let alone hygiene, is there any good reason, any justification for admitting children to school work in the present haphazard fashion and in neglecting to give such an examination at the beginning of school life? Admission of the deficient should be postponed, or they should be placed in special classes.

Another great problem of the school is the problem of grading. It is obvious that if children were tested at the beginning of school life, if the different working types were distinguished, and if the feebleminded were excluded, it would be far easier later on to solve the problem of grading. Many of the difficulties of this problem would be removed by such an examination, and the right beginning would save a considerable number of repeaters in the early grades.

Most important of all, perhaps, is the problem of obtaining the right attitude between pupil and teacher. A thorough examination of the children at the outset would help much toward insuring this. The teacher would learn the handicaps of defective vision, defective teeth, chronic disease, unfavorable home conditions and the like. Such an examination would be of great advantage to teachers also in another way. The great mistake still found almost everywhere is that of giving attention to the subject to be taught rather than the child to be educated, the subject of culture rather than the object of culture. An examination of this sort would at the outset call the attention of the teachers to the needs of individual pupils, and the advantage to teachers might be as great perhaps as to parents.

Educators now are beginning to recognize that the knowledge acquired in the school amounts to relatively little, but that the habits formed and the attitudes toward life and society and work that are carried away from the school are of vital importance. A circular issued to the state inspectors of schools by the state superintendent in Wisconsin calls attention to this fact, and this is coming to be the keynote of the exhortations to teachers. If, then, this is the aim, what could be more important than to start school work aright and to have the right attitude toward the school developed at the outset in the minds of parents and teachers on the one hand, and the right attitude in the mind of the teacher toward the pupil on the other hand?

Such an examination will seem of course utopian; but practical school hygiene no longer fears this charge. The difficulties connected with such a plan are, of course, great. One objection which will be urged is the fact that so much time and expense would be required to make such examinations. Of course it is all a question of relative values; but if, as is probable, the whole scholastic career of the child is likely to be influenced by the way he begins school work, and if the attitude of parents and teachers is to be determined largely by such an examination, and if the school work for the early years at least will be made far more efficient by having it, and if, finally, the parents are likely to be educated by such an examination to better cooperation and greater interest in the school, how could the time be better spent? It would be an excellent thing in most cases if both parents were required to give up half a day for such an examination, with provision, of course, that in case of special need one parent might be excused. Nothing, probably, would do so much to make the parents interested in the work of the school, to make them prize its opportunities, to make them cooperate with the teachers and to make them give more intelligent attention to the physical welfare and health conditions of their own children.

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[11] Strayer, G. D.: Retardation and Elemination of Pupils, Monroe's Cyclopedia of Education, New York, the Macmillan Company, 1913, 5, 169.

It frequently becomes necessary on account of the ignorance and poverty in many homes for the school to assume functions which do not belong to it. It may well be maintained, for example, that it is not the function of the school to bathe children or to clean their teeth; but it often becomes necessary for the school to assume such duties. In all such cases, however, the principle should be for the school to assume them in such a way that it will not be permanently necessary. The parents should be so educated that after a time they will assume the functions which really belong to the home; and in any case the training should be such that when the pupils who are in the schools today become the parents of the next generation they will be competent and willing to perform the duties which really belong to the home. Education of the parents of today would be greatly furthered by their presence in this admission examination.

Again, it would tend to give teachers the right attitude toward the home and toward children. Teachers should always recognize the authority, the responsibility and the general expert character of the parents in the education of their own children. The numerous exceptions to this can be treated all the better by one who recognizes this general truth. On the whole, perhaps we may say that parents are not much more inefficient than we teachers, and certainly we can learn from a child's parents in regard to the best method for his education.

Again, such a plan not only is likely to make the work of the teacher easier, but also to make it far easier for the medical inspector to do his work without interference from the parents and to make the school nurse a welcome visitor in the homes. Such a plan with a suitable system of medical inspection and with school nurses would also make it far easier to control contagious diseases. The interest of general hygiene as well as of school hygiene would be greatly furthered. The medical inspector in turn will lose nothing by recognizing the general expert character of parents in regard to their own children.

Many things of vital importance in connection with the development of children are likely to be known only by the parents, and would be gladly contributed by them in such an examination. For example, children who are born prematurely are apt to have a precocious development, as might be supposed. The premature stimulation from the external world hastens the medulation of the nerves, and I understand that observation shows that in later years such children are more liable to certain disorders and are less able to do the work of the school. Such a fact is of vital significance for adapting the work of the school to the individual, and parents alone are able to give this information.

The work of medical inspection cannot be carried out satisfactorily without the intelligent cooperation of parents. The difficulties found by the inspectors in performing their duties in health inspection illustrate this concretely. Dr. Arnold[13] of Boston has reported cases in the early years of medical inspection in that city, among them the following:

> Four children were sent home with suspicious-looking throats. With each child was sent a note stating that there had been some cases of diphtheria in the schoolroom, that the child had a sore throat which probably was diphtheria, and that the school inspector advised calling the family physician. The doctor was not called in a single case. The mother of one of the children brought him back herself in the afternoon, and was abusive to the teacher for sending him home. I turned up just in season to get my share. I was informed that I did not know what I was talking about; that his nausea and vomiting and constitutional symptoms two days before were due to indiscretion in eating; that his sore throat was "simply tonsillitis," to which he was subject, and that the patches in the throat were of no importance. The other children might have diphtheria, but her boy didn't "because he wasn't sick enough." She refused to let me take a culture, and was informed that the boy would not be admitted to the school until a negative culture had been obtained by myself, or, if she preferred, by her family physician. She did not go to the family physician until after a week had elapsed, when a culture proved negative. I feel reasonably sure, however, that an earlier culture would have been positive.
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> The three other children returned next morning. Two brought verbal messages that they were well enough to come to school. The third brought a note from his father, saying that it was absurd to say his boy had diphtheria. Cultures were taken from all three throats, and all proved positive. The mother of one of these was not convinced even then. She called another doctor to prove that the school doctor was wrong, and discharged him when he obtained a positive culture, and she was only partially persuaded there was no trick in it when a third doctor also found a positive reply to his culture.

A HEALTH YEAR FOR BEGINNERS

Health inspection comprises two things: first, limited medical inspection for detecting and controlling contagious diseases, and second, physical and mental examinations to determine the stage of a pupil's development, physical defects, noncontagious diseases and the like. There is a growing consensus of opinion that while the former may be placed under the control of the board of health, the latter should be under the control of the educational authorities, or at least conducted with their full cooperation. In any case there should be concentration of authority and responsibility in the hands of competent experts, and adequate records should be kept.

The latter form of health inspection should be made much more thoroughgoing than is now customary. The results of recent investigations in child hygiene indicate that the aim and character of elementary education should be revolutionized and the emphasis placed especially on health, normal development, spontaneous motor activities, plays, voice drill and the like; that if the work of the school is to be done successfully in later years special care should be taken at this period to put the child's physical organism in the best condition possible for healthful development. This is the time to care for the development of the vital organs of the body, to protect the sense organs, and to develop habits of healthful activity in the widest sense.

If the hygienist could have his way, the first year of school life, or perhaps the first two years, would be a *Vorschule*, in which the teachers would be physicians

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13. Arnold, H. D.: Some Results of the Medical Inspection of Schools in Boston, Report of the Commissioner of Education, Washington, 1897-1898, p. 1494.

and hygienists; and the aim for this year would be to determine the child's stage of development, his physical resources, his physical defects, etc., and as far as possible to remedy these defects and to foster normal development by ample opportunity for play and other forms of spontaneous motor activity.

Note what happens at that great epoch in life when a child enters school. The freedom of the home and of the street must be given up for the restraint of the schoolroom. Customary stimuli are replaced by new ones. Customary reactions must be inhibited and new forms of response acquired. In general, an attempt is made to develop the power of inhibition and of voluntary attention. As a result, the first year is liable to be a trying one. In Germany this has been indicated by several studies. The need of a special examination at school entrance and of special hygienic care during the first year of school life in that country has been strongly emphasized by the results of several investigations which show the work of the first school year correlated with a decrease in the rate of growth and an increase in the amount of disease. Dr. Schmidt-Monnard,[14] for example, as a result of investigations carried on for years in Halle, found that with the beginning of school life there was a decrease in the rate of physical growth. According to his studies carried out on the same children the yearly increase in weight for those who had not yet entered school was, for the years 6 to 7, 2.2 kg. for boys, and 1.9 kg. for the girls. The rate of increase in height was 7.4 cm. for the boys, and 5.4 cm. for the girls. On the other hand, in the case of children of the same age who had already entered school, the yearly increase in weight for the year 6 to 7 was for the boys only 1.5 kg., and for the girls 0.6 kg.; the increase in height for the boys was 4.2 cm., and for the girls, 4.5 cm. Thus the increase both in height and weight was less in the case of both boys and girls who were in the school than in the case of the boys and girls of the same age who were not in school.

Hertel, in Copenhagen, where the children entered school at the age of 7, found a considerable increase in the morbidity of the children in the seventh year of life, that is, in the period after school entrance, and a decidedly marked minimum of disease in the sixth to the seventh year, that is, the year before school entrance. In Halle, on the other hand, where the children entered school a year earlier, this year, 6 to 7, was the time of an increase of the morbidity.

Dr. Quirsfeld[15] also studied the effect of the first school year on 1,014 schoolchildren. According to him, the average increase in growth in the first school year was 2.5 cm., and in each succeeding school year 5 cm. The average increase in weight in the first school year was only from 0.5 to 1 kg., in the second school year from 1 to 2 kg. He found also in the course of the first school year a decrease in weight in cases of 15.87 per cent. of the boys and 24.84 per cent. of the girls; and a standstill in weight in the case of 29.73 per cent. of the boys and 44 per cent. of the girls; he found also in the course of the first school year a decrease in muscular development in the case of 29.59 per cent. of the boys and 49.05 per cent. in the case of the girls.

As Dr. Quirsfeld remarks, it is difficult to give the cause of this; whether the seventh year of life is the period of weakest physical development it is difficult to say. As a control it would be necessary to have a sufficiently large number of children of the same age, who during the seventh year of life were out of school, living a free life as heretofore. Injurious influences, mental overstrain, fatigue, insufficient sleep — in modern schools and with modern methods of instruction — can hardly, except in individual cases, be alleged as possible causes for arrest in physical development. The causes may be exclusively individual constitution and changed conditions of life.

Until we have such a preparatory year devoted to health and development, the problem of what should be done with those children who would be excluded from school by such an entrance examination is an important one. In Bonn and other cities in Germany where an entrance examination of more or less thoroughness is made, the children excluded because of lack of physical development are usually placed in a kindergarten. Such a plan modified to suit local conditions, especially if the kindergarten has largely outdoor occupations, seems an excellent one.

SUMMARY

The reasons for a thoroughgoing health examination like that described above are obvious. Such an examination is desirable:

1. To prevent those children who are in ill health or not sufficiently developed physically and mentally from entering.
2. To provide the necessary physical data to enable teachers so to order the school work that it will not result in injury to health or a check to development, as often happens in the first year of school life.
3. That proper grading and adaptation of school occupations to individual capacity may begin at the outset of school life.
4. To give school physicians the data necessary for safeguarding the health of children against contagious diseases and the like.
5. To give teachers proper knowledge of the new pupils and the right attitude toward them.
6. That children may begin right and be saved from unnecessary failure and retardation or elimination in later grades.
7. To educate parents and foster a right attitude toward the school.
8. To save the money of tax payers, now largely wasted, and so badly needed to provide for absolutely essential hygienic conditions.

Children who should be excluded from the school are:

1. Those who have any infectious disease.
2. Children who have rickets, or the after-effects of rickets to the extent that they are in poor physical condition and liable to develop neuroses or some other defect from the influence of school work.
3. All children who have tuberculosis, unless there are outdoor schools in which they can be placed.
4. Children who are in a serious condition of anemia, unless again there are outdoor schools in which they can be placed.
5. Those who have any chronic disease which is liable to be aggravated by school attendance or would interfere with school work.
6. Those who are in a retarded stage of physiologic development or mental development, where this would be improved probably by keeping them out of school,

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[14] Schmidt-Monnard, in Selter, H.: Handbuch der Schulhygiene, Dresden, Steinkopff, 1914, p. 362.

[15] Quirsfeld, in Selter, H.: Handbuch der Schulhygiene, Dresden, Steinkopff, 1914, p. 363.

and where injury would be done by admission to school, or where it would interfere with school work.

7. Those who have serious sense defects.

8. Those who have any neuroses or the like which would be psychically contagious, epilepsy, chorea, stuttering and the like.

9. Children who have not been vaccinated.

The importance of this entrance examination can hardly be exaggerated; and here is an opportunity where women's clubs, parent-teachers associations, and similar organizations may use their efforts to good effect, to bring about as soon as possible a public sentiment which will not only permit, but also demand, a thoroughgoing examination of this kind.

In order to make the results satisfactory, however, the examination should be thoroughgoing, plenty of time should be taken for it, and both parents and teachers should be present.

The practical man will say that a plan of this kind is admirable, but at present it is quite out of the question because it would never be possible to get parents to attend such examination, and give the necessary cooperation. Of course it might not be possible in all places, but it would be possible in certain communities at least to approximate a plan of this kind; and this is the ideal toward which health inspection should work.

Our present haphazard method of taking in the sick and the well, the developed and the undeveloped, the normal and the feebleminded, the defective and the sound, and of teaching them together at the outset is wasteful and absurd. A grading with the knowledge that we now have would help to a great degree.

The movement for health inspection should be ardently advanced. A health examination at school entrance is the next important step. With the present dissatisfaction with the schools on the one hand, and the great interest in methods of efficiency on the other, the time is favorable for such an improvement. This would ultimately require some new legislation and some readjustment of school plans, but it would be merely carrying farther what is already done in some schools. If the plan were given a fair trial in some one city or state, I am confident that the advantages would be so great that soon the movement would spread.

Thus it is obvious that such a thoroughgoing examination of the physical and mental condition of the children would help in many ways. It would help greatly in the diagnosis of doubtful cases. It would save the expense of a large number of repeaters. It would lighten the burdens of the teachers. It would develop right attitudes in parents, and in many cases save the anguish of discovering later that children are feebleminded or defective. It would be only reasonable justice to the children themselves. It would in some cases save those who are candidates for mental disorder. In a word, such an examination would be distinctly important for mental as well as somatic hygiene.

The Cure for Alcoholism.—The education of public opinion and private habits is at present the only reasonable and promising measure at the service of the public health officer and the private practitioner in the effort to have the general use of alcoholic beverages—and the largest single cause of poverty and sickness—abandoned. Other habits, also, as to housing, eating, personal cleanliness, recreation, etc., are certain to be modified by education, and in no other way.—Haven Emerson, M.D., "Preparedness for Health.".

THE CLARIFICATION OF MILK

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Among the important developments which have taken place in recent years in the market milk industry has been the introduction of the milk clarifier. An interesting phase of the subject is the attitude of public health authorities toward the process.

It is well known to every one who is at all acquainted with milk production that under ordinary conditions more or less dirt of an insoluble nature is introduced into the milk. The grosser particles are removed on the farm by strainers of cloth and wire. So long as milk was dispensed from the can and placed in the vessels provided by the housewife, the small amount of sediment which might be deposited was not noticed, since, as a rule, the milk was placed in opaque vessels. With the advent of the milk bottle, amounts of sediment which previously passed unnoticed became evident, and the dealer was forced to demand of the farmer greater care in the production of the milk, and likewise was forced to improve his own processes of straining the milk. The statement has been made that the Babcock method of determining the content of milk in butter fat has done more to make dairymen honest than the ten commandments. It would seem that the use of the glass milk bottle would have had a great effect in inducing cleanliness on the farm if methods had not been found for removing all materials which would settle in the milk. The cream separators were widely used for this purpose. The violent agitation to which the milk was exposed and the removal of the skim milk and cream from the machine through separate outlets made it difficult to get a product which would cream as rapidly and completely in the bottle as the untreated milk. The consumer judges the richness of the milk by the depth of the cream layer, and hence any process which tends to diminish this layer does not receive the full approval of the dealer, no matter what its other advantages may be.

The introduction of the clarifier, a machine in which the cream is not separated from the skim milk and yet in which sufficient centrifugal force is applied to the milk to remove any materials which would settle through force of gravity, caused clarification to be looked on with much greater favor by the milk dealers, since the milk creams in the bottles as well after treatment as before. The clarified milk does not show any sediment, and the consumer can draw no conclusions concerning the conditions under which the milk has been produced, so far as the introduction of dirt is concerned. In other words, insoluble dirt which has been introduced into milk can be removed. The milk can be improved in appearance and thus made more appetizing.

During the last few months some interesting articles have appeared. Dr. J. Arthur McClintock,[1] bacteriologist, published the results of his investigations made in several cities, including Chicago, St. Louis, Cincinnati, Omaha, and Lincoln, Neb. He says:

> It is generally acknowledged that there is no absolutely normal human being; neither is there any absolutely normal dairy cow. In the system of every animal the process of

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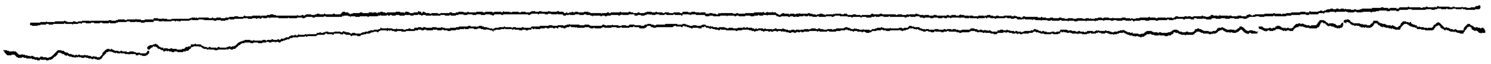
[1] McClintock, J. A.: Milk Trade Jour., August, 1916.

hereditary or acquired, abolition of the oculocardiac reflex occurs very frequently, and, therefore, in absence of other physical signs of the disease, ought to suggest the etiology of the condition," and concluded that the abolition of the oculocardiac reflex was indicative of an organic lesion of syphilitic disease (hereditary or acquired) of the central nervous system.

The accompanying table is an average result of a study of thirty-seven cases of syphilis of the central nervous system in which pulse tracings were made.

OBSERVATIONS

1. Abolition of the oculocardiac reflex is among the earliest signs of syphilitic disease of the central nervous system and one of easy diagnostic practicability to the general practitioner.
2. The oculocardiac reflex was abolished on the side exhibiting the hemianalgesia with preserved tactile sensation in the case presenting the Millard-Gubler syndrome.
3. In only one case of well marked tabes with cervical involvement in which pressure on the eyeball and testes was not painful was there evidence of diminished or disturbed superficial sensation other than in the case mentioned above.



Pulse tracing during paroxysm of spasmodic weeping, occurring in pseudobulbar palsy.

4. In 52 per cent. of the cases studied, the pulse rate ranged from 82 to 112, and the increased rate occurred chiefly among the well marked paretics.
5. In third nerve palsy, the ptosis can sometimes be overcome by the patient reinforcing the ptotic lid by forcibly holding the lids of the sound eye closed.
6. During the paroxysms of spasmodic weeping, occurring in pseudobulbar palsy, the radial pulse is practically imperceptible at the wrist, showing a reflex inhibition of the heart beat.

Central Indiana Hospital.

ACUTE APPENDICITIS

ANALYSIS OF EIGHT HUNDRED AND TWENTY-TWO CASES IN WHICH OPERATION WAS PERFORMED AT THE COOK COUNTY HOSPITAL

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From Nov. 11, 1912, to Feb. 22, 1916, 822 patients with acute appendicitis were operated on in the Cook County Hospital by the surgical staff of this institution. Of these, 766 recovered and fifty-eight died, a mortality of a trifle over 7 per cent. (7.05 +).

This corresponds almost exactly to that noted by Coffey,[1] who found a mortality of 7.4 per cent. in a series of 13,445 operations, collected from the various hospitals of this country.

Table 1, made from the notes recorded at the time of operation, will give an intelligent comprehension of the pathologic conditions encountered.

Of the fifty-eight cases terminating in death, seventeen showed a general peritonitis at the time of operation. These should be considered as cases of general peritonitis, as the complication (general peritonitis) is of far greater importance than the original condition. Deducting these from the fifty-eight cases which terminated fatally, we have a mortality of not quite 5 per cent. (4.98) for what might be called uncomplicated acute appendicitis. Unfortunately many of our patients come from an unintelligent clientele and are not brought to the hospital before the disease is far advanced, and the patient practically in a dying condition.

TABLE 1.—PATHOLOGIC CONDITIONS*

Condition	Number
Acute appendicitis	445
Acute appendicitis with abscess	266
Gangrenous appendicitis	127
Acute appendicitis with diffuse or general peritonitis	26
Normal appendix	1
Total	865

* The discrepancy in the figures (865 and 822) is due to the fact that sometimes two conditions were encountered, as gangrenous appendix and abscess.

TABLE 2.—PATHOLOGIC CONDITIONS ENCOUNTERED IN THE FATAL CASES

Condition	Number
Acute appendicitis and general peritonitis	17
Acute appendicitis and abscess	21
Gangrenous appendicitis	7
Gangrenous appendicitis and abscess	6
Acute appendicitis	5
Gangrenous appendicitis with intestinal obstruction	1
Acute appendicitis and cholelithiasis	1

The importance of operating before this unfortunate complication has set in is so well recognized that it needs no comment and is emphasized by the analysis of Table 1.

Of the 445 patients operated on for simple acute appendicitis, five died, a mortality of a trifle over 1 per cent. Of the 266 patients operated on for acute appendicitis (suppurative, gangrenous, perforating) with abscess, six died, a mortality of 2.2 per cent.

Of the 127 patients having gangrenous appendicitis without abscess formation, seven died, a mortality of 5.5 per cent. From this it would seem probable that abscess formation should be considered as an indication of resistance on the part of the organism.

TABLE 3.—OPERATIONS PERFORMED IN THE EIGHT HUNDRED AND TWENTY-TWO CASES

Operation	Number	Per Cent.
Appendectomy	418	50.8
Appendectomy and drainage	313	38
Simple drainage (appendix not removed)	79	9.5
Operation not described	12	1

TABLE 4.—OPERATIONS PERFORMED IN THE FATAL CASES

Operation	Number
Appendectomy	7
Appendectomy and drainage	32
Simple drainage	15
Cholecystostomy, appendectomy and drainage	1
Operation not described	3

TABLE 5.—CAUSES OF DEATH AS NOTED IN THE FIFTY-EIGHT FATAL CASES

Cause	Number
General peritonitis	33
General peritonitis and fecal fistula	5
Fecal fistula and decubitus	1
Fecal fistula	1
Subphrenic and retro canal abscess	1
Paralytic ileus	1
Pulmonary embolism and peritonitis	1
Brain abscess	1
Bronchopneumonia	1
Pneumonia	1
Femoral thrombosis	1
Hemorrhage from abdominal wound	1
Cause of death not stated	10

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[1] Coffey: New York Med. Jour., August, 1906.

CONCLUSIONS

While acute appendicitis is usually considered as characteristically a disease of young adult life, it is not infrequent in childhood. One hundred and fifty of our 822 cases occurred in children under 15 years of age. Of these children, 138 recovered and twelve died, a mortality of 8 per cent. Riedl[2] gives a mortality of 13 per cent. in a similar class of cases in which operation was performed at the Jena Clinic.

TABLE 6.—COMPLICATIONS WHICH DEVELOPED DURING THE CLINICAL COURSE OF THE EIGHT HUNDRED AND TWENTY-TWO CASES

Complications	Number
General peritonitis	44
Fecal fistula	18
Pregnancy [8 did not abort, 2 aborted]	10
Pneumonia	4
Bronchopneumonia	1
Obstruction to drainage making second operation necessary	3
Appendicitis in hernial sac	2
Bronchitis	1
Pus in hernial sac	1
Pulmonary embolism	1
Subphrenic abscess	1
Ischiorectal abscess	1
Decubitus	1
Brain abscess	1
Femoral thrombosis	1
Hemorrhage from wound	1
Delirium tremens	1

From the data given in the tables, certain conclusions may be drawn as follows:

1. General peritonitis is still the most frequent complication of acute appendicitis. In a small number of instances a critical study of the clinical history reveals that this complication seems to have been dependent on too early removal of the drain in abscess cases. Drainage tubes, gauze, etc., should be removed gradually to avoid inclusions and subsequent spread of infection.
2. Early operation means a low mortality.
3. Abscess formation may be considered as evidence of resisting power on the part of the organism (2.2 per cent. mortality in abscess cases against 5.5 per cent. in gangrenous appendix cases without abscess formation).
4. Fecal fistula, while comparatively frequent and annoying, has little importance in increasing mortality.
5. Abortion is not greatly to be feared if appendicitis occurs during pregnancy. While we had only comparatively few of these cases, it is interesting that in the ten cases there were only two abortions.

910 Dakin Street.

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[2] Riedl: München. med. Wchnschr., Nov. 26, 1907.

Credulous Man.—"Credulity is a monarch upon whose kingdom the sun never sets. The cradle and the grave are its frontiers, the entire human race its subjects."

EXTREME PROLONGATION OF CONDUCTION TIME IN THE BUNDLE OF HIS

AN EXAMPLE RESULTING FROM DIGITALIS THERAPY *

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AND

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History.—A. A., white man, aged 60, married, farmer, was admitted to the private ward of the Johns Hopkins Hospital, Nov. 30, 1915, complaining of "heart trouble," having been referred by his family physician, Dr. Ira J. McCurdy of Frederick, Md., for diagnostic study.

The family history is unimportant. The patient married twenty-seven years ago, and his wife has had good health, though she has never been pregnant. There is no history of syphilis.

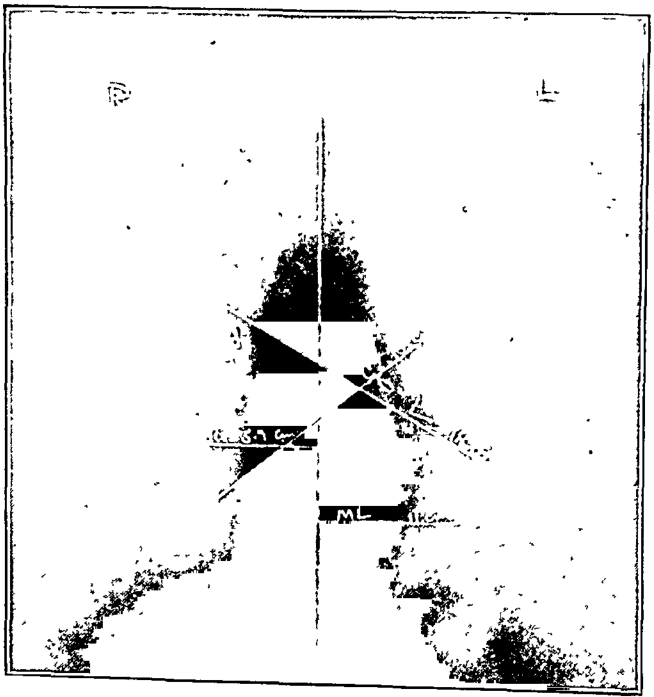

Fig. 1.—Teleroentgenogram of the heart: slight increase in cardiac volume.

Except for measles, mumps and pertussis as a child, the patient gave no history of infections. For many years, he suffered, at times, from dyspnea that he attributed to the "hay-fever," to which he is subject. He stated that for nine years he had had what he considered to be "heart trouble," characterized by shortness of breath accompanying paroxysms of pain over the heart and extending into the left arm and neck. The patient said that with these attacks his "pulse had dropped beats," and, that following them, a soreness persisted over the heart. He had noticed that these attacks were brought on by exertion or by mental excitement. They could be avoided by rest and by the use of nitroglycerin. Subjectively, the attacks were characterized by a sense of impending dissolution.

The patient's habits have been good. He has always been a hard worker and he has had considerable business worry. In the year preceding admission, he had lost 30 pounds in weight.

The present illness, according to the patient, had been of about one year's duration, having followed and having been accentuated by unusual business cares; these cares, he asserted, had increased the frequency and severity of his "attacks." A month before admission, and again three weeks later, he had suffered from an unusually severe attack of cardiac pain precipitated by physical exertion. Both of these attacks had necessitated rest in bed for a week, during which time the pain continued irregularly to be present.

Physical Examination.—The patient was a rather large, well developed man. There was slight cyanosis, and slight signs of hyperthyroidism were made out. The pupils were active, and there was an arcus senilis in each eye. The ophthalmoscopic examination revealed nothing of importance. Carious teeth were discovered with marked pyorrhea alveolaris and evidences of considerable dental repair. There was no glandular enlargement.

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* From the Medical Clinic of the Johns Hopkins Hospital.

The thorax was symmetrical and showed a slight tendency to funnel chest, with a wide costal angle. The examination of the lungs revealed nothing abnormal.

The pulse rate was 88; the pulse, on palpation, was regular in force and in rhythm. The radial walls were just palpable. Systolic and diastolic blood pressures were 160 and 80 mm. of mercury, respectively. There was a well marked venous pulsation in the neck, apparently of normal type. The apex beat was in the fifth interspace 12 cm. from the median line, and it was medial from the midclavicular line. The deep cardiac dulness extended 4 cm. to the right, and 14 cm. to the left of the median line; retromanubrial dulness, measuring 9 cm. across, was made out in the first interspace. There was a blowing holosystolic murmur at the apex, poorly transmitted toward the axilla. No accentuation of the sounds at the base was noted. During the examination there was an occasional irregularity suggestive of a ventricular extrasystole.

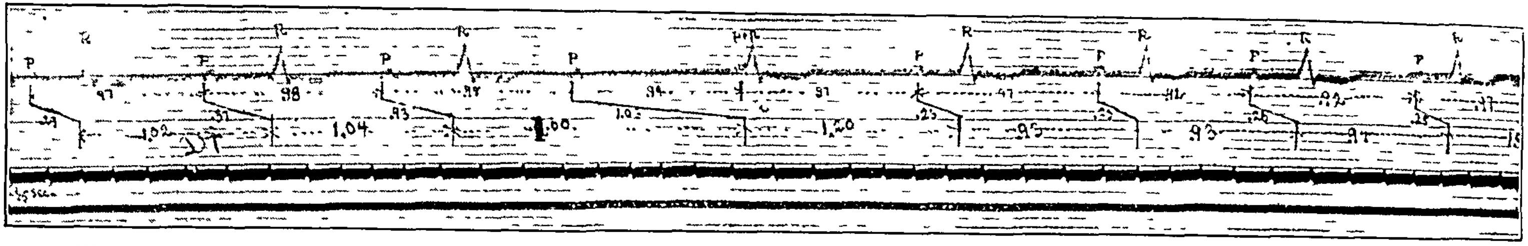


Fig. 2.—Electrocardiogram, D i: This tracing, taken the day of admission, shows variable conduction periods ranging from 0.23 second to time intervals are indicated on the tracing.

The liver dulness extended one finger's breadth below the costal margin.

The examination of the urine revealed nothing abnormal. The Wassermann test was negative. The blood count was normal. The temperature was not elevated.

A teleroentgenogram of the heart (Fig. 1) taken at a distance of 178 cm. revealed a longitudinal diameter of 18 cm., the transverse diameter measuring 12 cm. The right cardiac border was 5.7 cm., the left 11 cm., from the midline. In other words, the heart was only moderately enlarged.

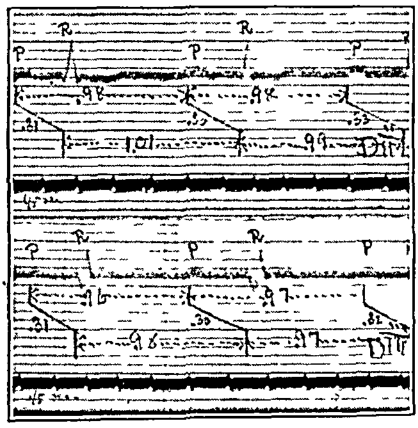


Fig. 3.—Electrocardiogram, D ii and D iii: Tracing taken the day of admission immediately after D i. A fairly constant cardiac activity is ascertained from the measurements recorded.

Roentgenograms of the teeth disclosed periapical absorption areas and evidences of focal infection under the bridge work; treatment was at once instituted and these sources of toxemia eradicated.

The studies made in the heart station of the hospital were of considerable interest. Numerous tracings, both electrocardiographic and polygraphic, were taken during the patient's stay in the hospital. On the day after admission, as the patient had been taking a good deal of digitalis, a series of electrocardiograms was taken. The tracing made with the first derivation appears in Figure 2, and merits close attention. The forms of the atrial and ventricular complexes are constant in type, that is, there are no signs of an ectopic origin for any of the excitation waves, and, a point of importance, all of the ventricular excitation waves are supraventricular in origin. It is to be noted that the waves occur at regular intervals, save that there is a slight sinus arrhythmia; these atrial waves are from 0.92 second to 1.09 seconds apart, and no demonstrable relation exists between the longer periods and either the ventricular rate or the conduction time. The *P-R* interval is exceedingly variable (from 0.23 second to 1.03 seconds, or, indeed, to infinity, for an occasional atrial wave is without effect on the ventricle). It is noteworthy that there is a progressive increase in the *P-R* periods to this infinitely long conduction time. Thus, the first four *P-R* periods in Figure 2 are, in sequence, 0.29, 0.37, 0.43 and 1.03 seconds, and the next *P* wave is not followed by a ventricular complex at all. After the long rest thus afforded the His bundle, the conduction time becomes relatively rapid, for the next four ventricular complexes occur from 0.23 to 0.26 second after their controlling atrial excitations; and then, again, a slowing of conduction appears for three cycles (0.28, 0.36 and 0.90 second, respectively), and the next atrial wave is not conducted to the ventricle.

This form of prolongation of conduction time is that which we now know to occur as a result of digitalis therapy when the His bundle is diseased. It should always be borne in mind when administering digitalis or strophanthus; and when signs of it appear, further usage of the drug should be stopped, for if continued a complete heart block may supervene, the transition period to which is associated with well known dangers. The interventriculosystolic periods vary according to the interatriosystolic intervals and the conduction-time — from 0.93 second to 1.56 seconds; there was thus a marked bradycardia.

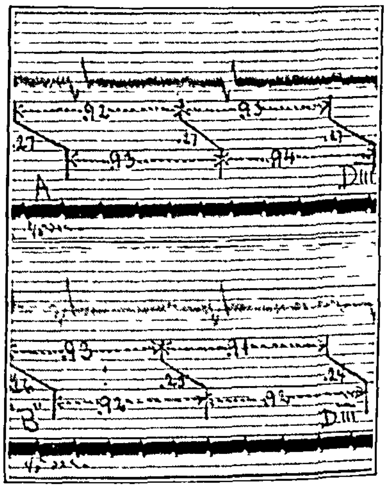
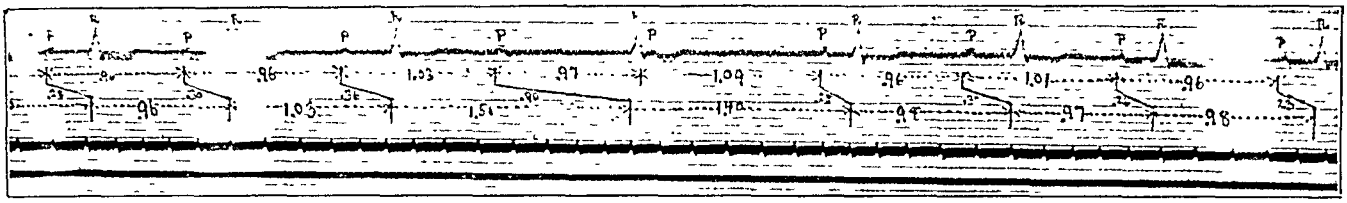


Fig. 4.—Electrocardiogram, D iii, after exercising a moderate degree in *A*, and to a violent degree in *B*: These tracings were taken immediately after the preceding ones, and show a regular cardiac activity with a marked decrease in the conduction period in spite of a more rapid rate, thereby exemplifying the heart's protective mechanism.

Immediately after the tracings were made with the first derivation, the adjustments were made to permit of the recording of tracings made with the second, and then with the third lead. These tracings, of which samples are shown in Figure 3, are quite constant as regards atrial and ventricular rates and also as regards the conduction periods, which, although prolonged, range in length only from 0.30 to 0.33 second. With a view to testing a possible relationship between periods of prolonged conduction and exercise, a tracing by the third derivation was repeated immediately after moderate, and again after strong, exertion. The result, as might have been expected, was to increase the atrial and the ventricular rates; interestingly enough, the *P-R* intervals were shortened from an average of 0.31 to one of 0.25 second. In spite of the use of such measures as rapid breathing, deep pressure on the vagus, and mild exercise, it proved impossible to reproduce the excessive *P-R* intervals.

The following day a series of simultaneous tracings was taken. The apex cardiogram, the phlebogram and the electrocardiogram (in short sections) are shown in Figure 5. The *P-R* interval measures 0.18 second, whereas the *a-c* time on the venous tracing is 0.22 second. The actual period of ventricular systole, as shown on the apex tracing (measured from the onset of ventricular rise to the shoulder), was within normal limits — about 0.32 second. The next day some electrophonograms were recorded; a section of a tracing is shown in Figure 6. The venous tracing, which appears in the same figure, shows an *a-c* time of 0.23 second. On the phonogram, second sounds were picked out as having sharp onsets, and from their beginnings the first sounds were ascertained by measuring back 0.32 second, which had been found to be the period of ventricular systole. It is interesting to note that 0.12 second before the onset of the first sound, a well marked presystolic vibration appears, which corresponds in time to the presystolic gallop that had occasionally been noted on auscultation. This interval between the presystolic and the first ventricular sound is definitely longer than the normal where the time interval is about 0.07 second. This tends to confirm the theory that the presystolic sound is the result of atrial activity.



1.03 seconds. The atrial rate is fairly regular at 65 per minute; the ventricular rate is not so constant, but averages 50 per minute. The

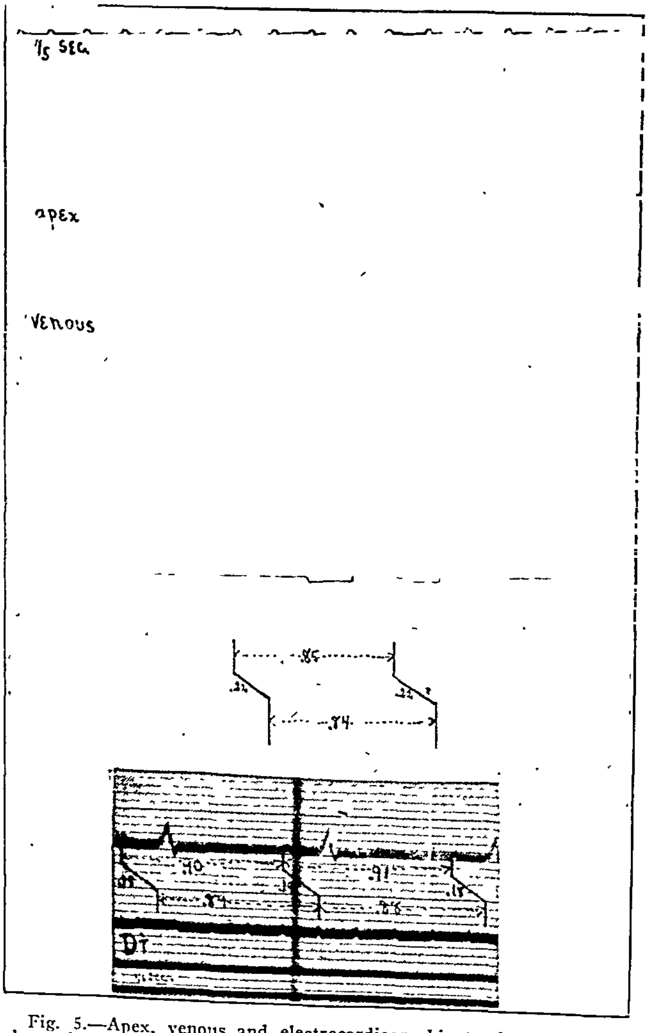


Fig. 5.—Apex, venous and electrocardiographic tracings taken two days after admission, showing slight increase in conduction time.

During the patient's stay in the hospital numerous tracings were taken, of all of which that shown in Figure 7, taken December 16, the day of discharge, is typical. Single left ventricular extrasystoles appeared occasionally, but the conduction times are just above the upper limits of normal, ranging from 0.18 to 0.22 second.

A diagnosis was made of *oral sepsis, arteriosclerosis, angina pectoris, partial heart block,* and a *slight grade of myocardial insufficiency.* As a result of the study, appropriate treatment was instituted. This was directed toward the prevention of further advancement of the arteriosclerosis by personal hygiene and by removing focal areas of infection. The patient was kept at rest in bed, and was given a light diet. Thrice weekly, he received general massage. All digitalis therapy was discontinued and his family physician was given a report of the findings showing the personal idiosyncrasy to digitalis dependent on the injury to the bundle of His.

After a stay of three weeks in the hospital the patient, much improved, was discharged.

Exclusive of its more theoretical interest in relation to cardiac physiology, this case is worthy of the attention of physicians for two reasons: In the first place it exemplifies, rather strikingly, one of the contraindications for the use of digitalis in the treatment of heart disease, and secondly, the accompanying tracings show an extreme prolongation of atrioventricular conduction time — a greater prolongation than in any instance hitherto recorded.

It has for some time been known that digitalis has the property of prolonging the conduction time of the His bundle, "provided the bundle is diseased." Especially is this true in cases in which, before therapy, there has already been some increase in the conduction time. As the dangers of the transition between partial and complete heart block (sudden syncope; ventricular standstill) have become recognized as very real, the risks of digitalis therapy in unselected cardiac cases have come to be understood. Fortunately, the vast majority of patients who are treated with digitalis show no untoward effects, possibly because of the fact that the His bundle is only comparatively rarely functionally impaired. There is, however, one group of patients in whom real harm may result from the use of digitalis. This group comprises persons who suffer from coronary sclerosis of either a moderate or a considerable degree. As a rule, these patients exhibit also a generalized arteriosclerosis, which, in turn, may be characterized by the signs of a primary contraction of the kidneys, by a slight grade of myocardial insufficiency, by cerebral arteriosclerosis or by peripheral vasomotor crises. In such people indiscriminate digitalis therapy may be truly a menace, and digitalis therapy, if employed, should be controlled by tracings — either polygraphic or, preferably, electrocardiographic.

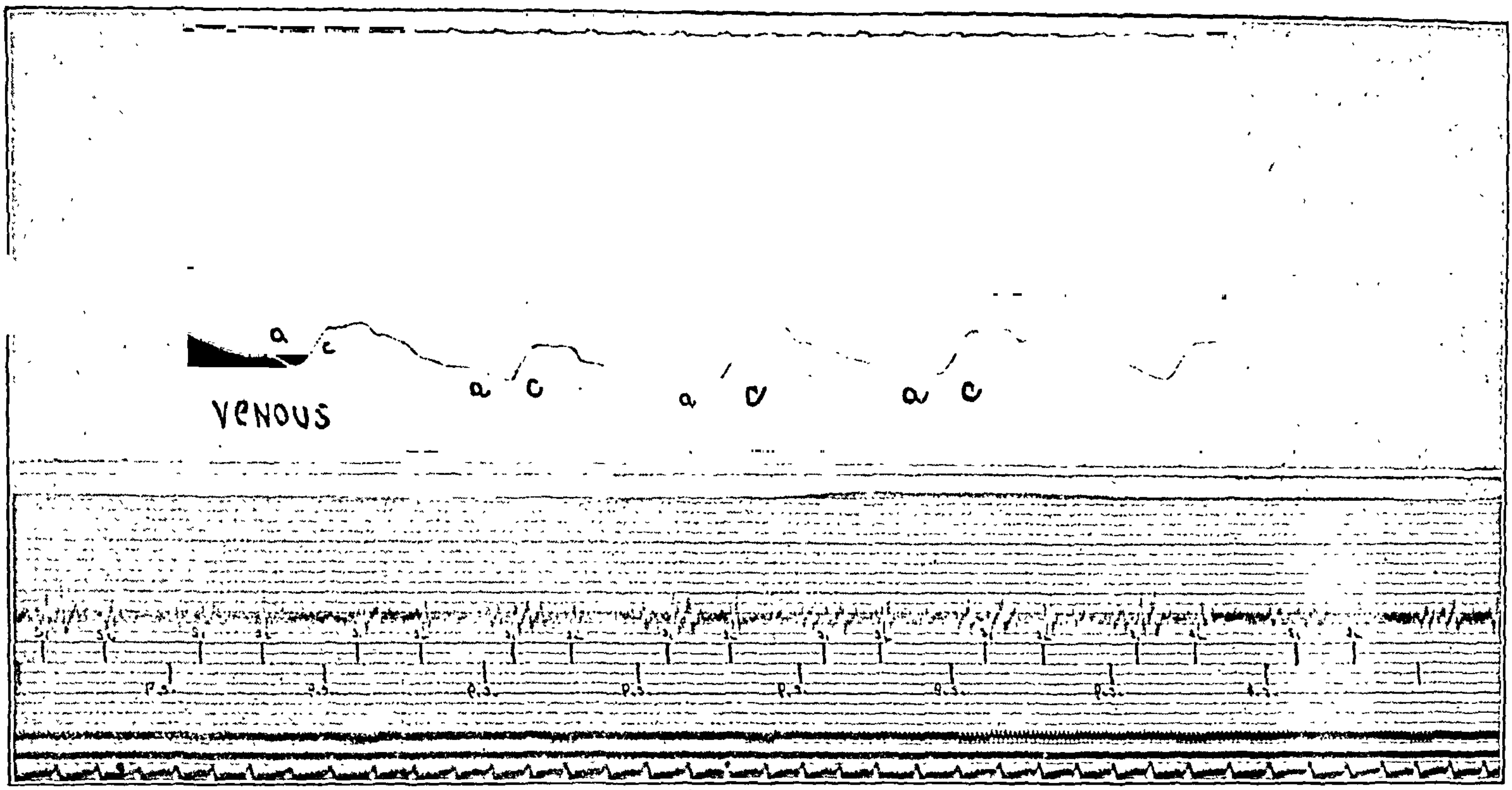


Fig. 6.—Venous and electrophonographic tracings: The time interval between the presystolic and first ventricular sounds is 0.12 second.

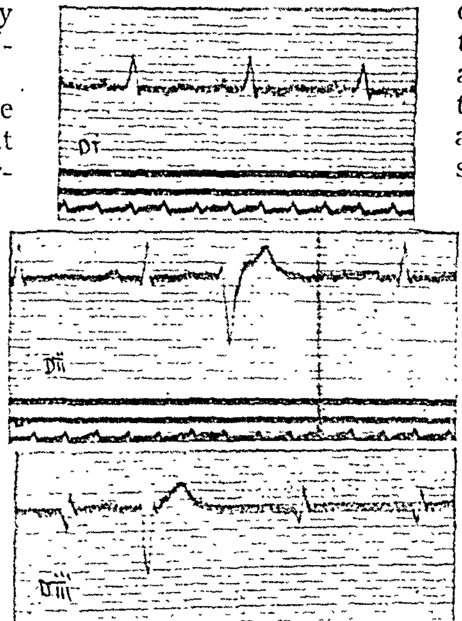


Fig. 7.—Electrocardiogram taken the day of discharge, showing occasional left ventricular extrasystoles. *P-R* time equals 0.22 second.

The blood supply of the His bundle is from an end-artery. Many different etiologic factors may lead to impairment of this vascular supply. The consequent deficient nutrition of the area supplied by the end-artery leads to fibrosis of the bundle and accompanying impairment of its function. The degree of involvement of the bundle cannot be discovered by the usual physical examination; it can be determined only by instrumental study of the circulatory function.

What the greatest possible prolongation of the conduction time of the atrial excitation wave to the ventricle may be is problematic; probably, the period may be of any length from the normal time up to one of infinite duration (with no resulting ventricular beat). Very few cases have been reported in which the conduction time, measured as the *a-c* time of the venous tracing, or as the *P-R* time of the electrocardiogram, has been more than 0.6 second. And, of course, in the *a-c* measurements one must take into consideration the presphygmic period, which, although variable, is generally between 0.05 and 0.08 second. Most of the reported cases of prolonged conduction time have been illustrated by polygrams and have not clearly excluded the possibility of impulses arising in the nodal region and causing coincidence of the *a* and *c* waves with the result that the *v* wave may have been regarded as the *a* wave of the succeeding cycle. Again, as in Gibson and Ritchie's case, one may doubt whether the waves have been correctly interpreted, when, for example, the first constantly recurring wave of the double group associated with atrial activity is attributed to a sinus origin, and the second wave is regarded as the true atrial wave. Furthermore, it is always difficult, in polygrams, to be sure of the exact character of the ventricular responses. In other words, it is distinctly advantageous, for the correct interpretation of cardiac activity, to have an electrocardiogram, since through it the supraventricular origin (if it exist) of the ventricular excitation wave can be confirmed, the origin of the atrial impulse can be definitely established to be in a fixed point, and the need for making allowance for a presphygmic period does not exist. But even in electrocardiograms there is a certain danger of mistake, owing to the possibility of coincidence of *P* and *R* waves and of *P* and *T* waves in cases of tachycardia. Much more free from possible error are cases that include simultaneous polygraphic and electrocardiographic tracings; the advantages of both the mechanical and electrical methods of study are thus obtained, and the coincidence of the *P* and *R* waves, and of the *a* and *c* waves at the same period in the same person are manifestly impossible, since *P-R* and *a-c* times are never equal in the same cardiac cycle.

In a recent article, Prof. William S. Thayer[1] has reported an instructive case of prolonged conduction time that was studied with the aid of both electrocardiograph and the polygraph. The *P-R* interval occupied in one period the unusual time of 0.88 second, and the *a-c* time in one cardiac cycle was no less than 0.97 second. Other cases of remarkable prolongation of conduction time have been reported, notably one by Griffith and Cole, and one by Thayer and Peabody; in both instances *a-c* intervals up to 0.6 second in length were encountered. But nowhere in the bibliography have we found such a [illegible] atrioventricular conduction tim[illegible] in the patient whose history we have recorded.

A SKIN REACTION TO QUININ *

FRED BOERNER, JR., V.M.D.
PHILADELPHIA

Idiosyncrasies of certain persons to such drugs as quinin, strychnin, iodoform and atropin are not at all uncommon, and many cases have been reported in which serious symptoms have resulted from the use of these drugs by such persons.

For a number of years I have been known to be hypersensitive to quinin. The first indication of this sensitiveness was observed after I had taken the drug for an attack of grip, the effects being manifested by a body rash and intense itching of the skin. Several times since, it has been taken in relatively small doses and has invariably caused a reddening of the skin and severe itching.

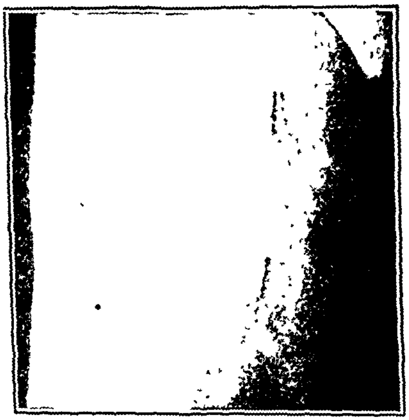
In some of the noninfectious diseases due to anaphylaxis, skin reactions have been found of practical value, and as idiosyncrasies to drugs are believed to be due to this phenomenon, it was considered of interest to try a skin reaction for sensitiveness to quinin. The method of conducting this test was similar to the cutaneous tuberculin test (von Pirquet), with quinin sulphate as an antigen.

The forearm was cleansed with alcohol and dried. Two abrasions were made with a needle, about 3 inches apart. The scarifications were just deep enough to remove the superficial layers of the skin. To one of these abrasions powdered quinin sulphate was applied. The other was left untouched to show the amount of irritation produced by traumatism.

In about five minutes the abrasion to which the quinin was applied began to itch slightly. This was followed by a slight edema along both sides of the pin mark which in ten minutes became very pronounced. At the end of fifteen minutes the reaction was at its height, and at this time was surrounded by a zone of erythema presenting a mottled appearance and extending over an area about 1 inch in diameter.

The next step was to determine whether or not this reaction was due to the irritant action of the drug on the skin, or if it could be produced only in persons susceptible to the drug. The test was applied to six persons who have repeatedly taken quinin without suffering any inconvenience. Two of these were able to take over 6 grains, and the others at least 1 grain doses. In not a single instance was there the slightest degree of reaction, there being no perceptible difference between the abrasion to which quinin had been added and the control scratch on which the drug had been omitted. The results of these tests pointed decisively toward the specificity of the reaction. A number of these tests were seen and verified by Dr. John A. Kolmer of the McManes Laboratory of Pathology of the Medical School of the University of Pennsylvania.

One of my colleagues, Dr. H. C. Campbell, on learning the results of these tests, informed me that he also was unable to take this drug without the appearance of a rash and intense itching of the skin. This statement indicated a hypersensitiveness, and accordingly the skin test was applied. In this case a positive reaction was obtained which was an exact duplication of the reaction obtained in my case, beginning with a slight itching followed by edema and erythema which reached its maximum in about fifteen minutes.


Skin reaction in author fifteen minutes after the application of powdered quinin sulphate in the upper abrasion; the lower abrasion is the control.

From these results it was obvious that the skin reaction obtained with quinin was of a specific nature, as positive reactions were obtained in both cases in which susceptibility to the drug existed, and entirely negative results in persons who were not sensitive.

It was thought of interest to determine the amount of quinin necessary to produce a reaction, and quinin bisulphate in normal salt solution was employed in dilutions of 1:10, 1:100, 1:200, 1:500 and 1:1,000. Six abrasions were made on the chest, about 1 inch apart, and to these the various dilutions were applied, one abrasion being left as a control. The best reaction was obtained with the dilution of 1:10, it being even more pronounced than those obtained with the powdered sulphate. The dilutions of 1:100 and 1:200 gave distinct positive reactions, while the dilutions of 1:500 and 1:1,000 gave only very slight reactions.

The results of the latter test indicate that the best reaction can be obtained by using quinin bisulphate in a dilution of 1:10, as in this dilution no reaction occurred in the negative cases.

An effort was made to sensitize guinea-pigs passively by injecting the serum of the two persons who were hypersensitive. Two guinea-pigs were inoculated, one intravenously and one intraperitoneally, with my serum, the dose being 1 c.c. per hundred gm. Two were similarly inoculated with 0.5 c.c. per hundred gm. of body weight with the serum of Dr. Campbell. Forty-eight hours later, they were injected intravenously with 0.5 c.c. of a 1 per cent. solution of quinin bisulphate. The pigs injected with my serum died within half an hour. The pigs injected with the serum from Dr. Campbell remained alive. Two normal guinea-pigs were inoculated with the same dose, one of which died immediately, the other living about half an hour. This indicated that the amount of quinin injected was too near the lethal dose. The necropsy of these animals failed to show any lesions of anaphylaxis, the lungs having collapsed and the other organs appearing perfectly normal.

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[1] Thayer, W. S.: Adams-Stokes Syndrome.—Persistent Bradycardia, Involving Both Auricles and Ventricles, Remarkable Prolongation of the As Vs Interval, Tr. Assn. Am. Phys., 1915, 63, 77.

* From the Laboratory of the Pennsylvania State Livestock Sanitary Board.

A second attempt was made to sensitize guinea-pigs with my serum. Two guinea-pigs were injected intravenously with 1 c.c. per hundred gm., and forty-eight hours later received 0.25 c.c. of a 1 per cent. quinin bisulphate solution. Both animals withstood the injection without showing any symptoms of anaphylaxis.

On account of the inability to sensitize guinea-pigs passively with the serum of those giving a positive reaction to the skin test, some question might arise as to the exact nature of these reactions; but as they were obtained only in those persons who were known to be susceptible, and as only a short time was required to produce the local symptoms with extremely small amounts of the drug, it is highly probable that the reaction is of an anaphylactic nature.

CONCLUSION

A skin reaction to quinin has been obtained which may be of practical value to the physician as an aid in determining the existence of an idiosyncrasy to this drug.

Thirty-Ninth Street and Woodland Avenue.

For the Adoption of the Metric System.—The American Association for the Advancement of Science at its 1917 meeting arranged a special conference on the subject of promoting the adoption of the metric system into practical usage in this country. Professor Kennelly of Harvard called attention to the simplicity of the two units of metric measurement, the meter and the gram, as compared with the numerous and confusing old style measures of length, area, volume, dry, liquid, cord, apothecaries, avoirdupois, troy, etc. A flagrant instance of the absurdity of the old measures is the bushel, which is both a measure and a weight, differing widely in different states of the United States. A bushel of rye, for instance, is 56 pounds in most states, 54 in California and 50 in Maine. A bushel of barley is 48 pounds in most states, 45 in Arizona, 46 in Oregon, 47 in Pennsylvania, Kentucky, Georgia and Alabama and 50 in California. A bushel of buckwheat is 40 pounds in California and 56 in Kentucky, a difference of 16 pounds, with many variations from these figures in the other states. Accurate, scientific work is measured by the metric system in all countries, but the United States, Great Britain and Russia still do not employ the system in practical everyday business. Since the beginning of the European war its use has widely extended in manufactures and commerce even in England and Russia, and manufacturers in the United States have been compelled to employ it in filling orders for war materials. The simplicity of the metric system is such that it is believed any intelligent child can learn and carry in his mind in three lessons the whole system, and that any reasonably intelligent adult should be able to master it in an hour or less of serious study. It is being rapidly introduced into medicine, is employed in annoting electrical units, and is in line with our decimal system of money.

New Instruments and Suggestions

A SIMPLE OPERATING FLUOROSCOPE

FOR AID IN REMOVAL OF METAL BODIES*

Ralph Boerne Bettman, M.D., Chicago

Soon after we began work in Vienna, we realized that foreign bodies, such as bullets and metal fragments, were much harder to remove than one would expect, judging from the roentgenograms, various localizations, etc., and also that even those readily attainable required large, free incisions so that the tissues could be easily searched. We had the same experience which many of us have had at home with needles in the hands and feet, repeated so often, however, that we finally attempted to use the fluoroscope in conjunction with the other methods, and thus hit on this inexpensive apparatus, which is simply a light fluoroscope or cryptoscope which can be strapped to the head of the operator.

It is in the form of a hollow truncated pyramid, with a base consisting of a fluorescent screen 13 by 18 cm., the four sides of thin wood, cardboard or papier mâché, about 13 cm. high, and the top left open and so shaped that it fits over the eyes of the surgeon.

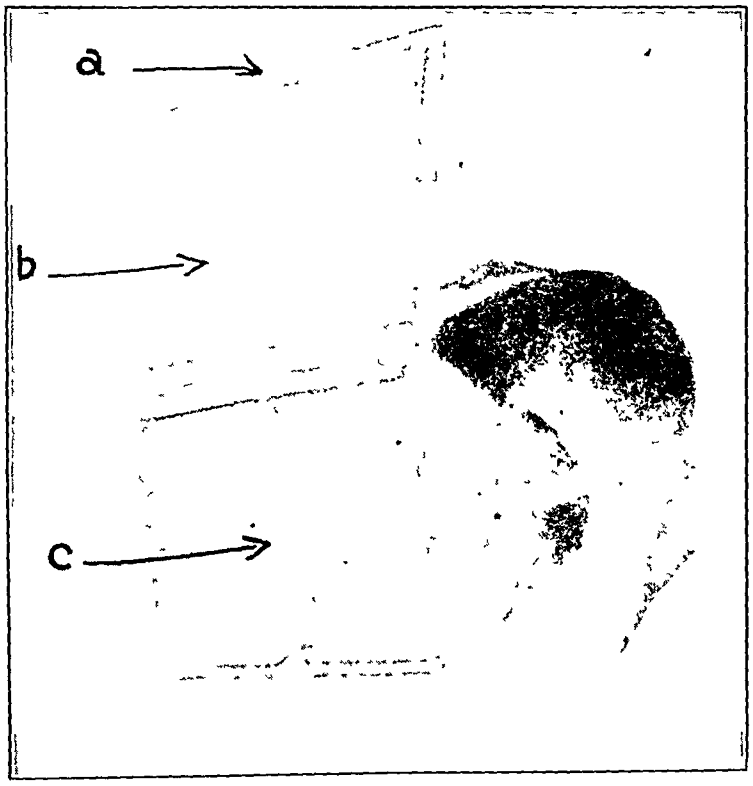

Fig 1.—Operating fluoroscope: *a*, catch; *b*, fluorescent screen open; *c*, lead glass.

The fluorescent screen is on hinges, and under the influence of a small steel spring it flaps open, allowing the operator to see. When the screen is pulled down it is held in place with a catch, and the surgeon is looking into a light-tight box, the floor of which is converted into a fluoroscope as the Roentgen rays strike it. Pressing on a button releases the screen.

The edges fitting over the face of the operator are rimmed with black fur or plush, as are also the edges of the screen, so as to make the whole apparatus light tight.

In easy cases, or when there is a dearth of assistants, the surgeon is at once operator and roentgenologist; in other cases an assistant wears the cryptoscope. After the assistant is "scrubbed up," the cryptoscope, which has been covered with a sterile black cloth, is fastened to his head. The foreign body has been localized as nearly as possible with roentgenograms taken in two directions, or with a localization apparatus, and it has been decided where the incision is to be made. The patient has been placed on the Roentgen-ray table and covered with sterile linen, after the usual operating room technic. The assistant now closes the screen, the Roentgen-ray machine is started, and the assistant sees the foreign body as with the usual fluorescent screen and demonstrates its position with some metal instrument. The surgeon, working in ordinary light, makes his incision and cuts down under the guidance of the assistant, who is watching the operation through the fluoroscope. It will often happen that the assistant assures the operator he is on the bullet before the surgeon recognizes that the hard indurated mass which seems to elude his knife is not scar but a firmly encapsulated metal fragment. Most of the Roentgen-ray tubes will not stand long periods of continuous use. We therefore often localize the bullet, turn the current off, allow the surgeon to incise and work down in the direction indicated, and then from time to time switch in the current again, guiding him back in the right direction. When the surgeon is acting at the same time as roentgenologist, the method is practically the same. While he is operating, the screen is flapped open and when orientation is desired the screen is closed. In many cases when operating this way, after the first incision is made, the surgeon can separate the tissues by blunt dissection under the guidance of the Roentgen ray down to the bullet, grasp it and extract it in this manner. This is possible only when the foreign body has not had time to become encapsulated. It is hardly necessary to state that great care must be taken not to catch some important vessel or nerve at the same time. The bullet ought always to be approached with the blades of the clamp closed. The clamp is then carefully opened just far enough to grasp the bullet and carefully closed on it. If there is any difficulty in extracting the bullet, the surgeon must see where the obstruction is, enlarge the wound if necessary, with the screen of course released, and then extract the bullet so as not to do an injury.

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* From the Wisconsin Surgical Unit of the American Physicians Expeditions Committee, K. u. K. Reserve Hospital No 8, Vienna, Austria (Surgeon in Chief, Dr. Joseph Rilus Eastman, Indianapolis).

We protect ourselves from burns by placing a 1 mm. aluminum filter over the diaphragm of the Roentgen-ray tube, and further by having a piece of lead glass inserted in the cryptoscope.

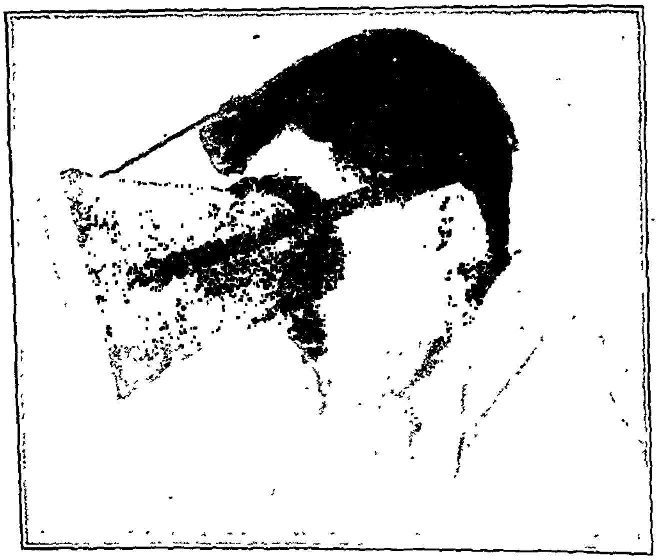


Fig 2.—Operating fluoroscope with fluorescent screen closed.

We have found that operations with the aid of the operating cryptoscope—the name given the apparatus in Vienna—are performed much more easily and quickly than with any other method of localizing the bullet, that a much smaller incision can be made when a small incision is desired, and that the tissues are not so apt to be mauled as when the surgeon has to search for a small encapsulated body. We have practically discarded all of the customary localizing systems for the reason that bullets change their position to a surprising degree, owing to muscle tone, different position of the patient, gravity, etc., and a small, firmly encapsulated body can be in the wound itself and still elude the most skilled surgeon. We have repeatedly with the aid of our fluoroscope removed bullets in a few minutes for which one or two previous operations had been made in vain.

We claim no originality for this method of operating, but simply wish to emphasize its advantages. Professor Holzknecht has done much to popularize this method. He has constructed a beautiful but complicated and expensive apparatus with which, in conjunction with several Viennese surgeons, especially Professor Eiselsberg, he has obtained gratifying results. It will also be recalled that as long ago as 1904 Dr. Grashey constructed an operating monocular cryptoscope.

THE DODDS-PARKER SUSPENSION APPLIANCE

Wilburt C. Davison, A.B. (Princeton); B.A., B.Sc. (Oxon.), Baltimore
Senior Demy, Magdalen College, Oxford; Rhodes Scholar, Merton College, Oxford, from State of New York

The accompanying illustrations show more or less clearly the mechanism of this apparatus. A large upright at each end of the bed supports a horizontal crossbar from which are suspended the rails or tracks for the overhead trolley. This trolley is a rectangular framework provided on its upper surface with small suspension wheels which fit on the rails and allow the trolley to be moved forward and backward over the bed with little effort. On the under surface the trolley is fitted with numerous screw-eyes to which pulleys may be attached. Figures 1 and 2 show the suspension appliance as used to support a fractured femur which has first been put up in a Thomas or an extension splint. The supporting ropes are attached at the upper and lower ends of the splint, and run first through the pulleys directly overhead and then through pulleys at the end of the trolley, and are there balanced by iron weights. The amounts of these weights of course vary for individual cases, but 6 pounds on each rope is usually sufficient exactly to balance the limb so that the patient can move it with minimum effort.

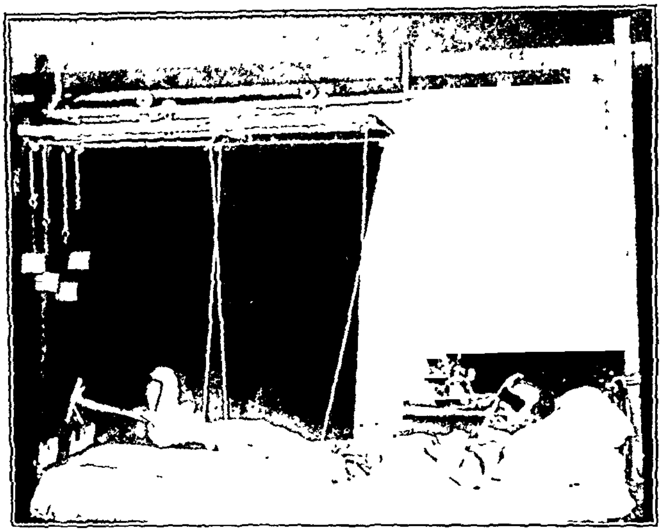


Fig. 1.—Suspension appliance as used for a fractured femur put up in a Thomas splint.

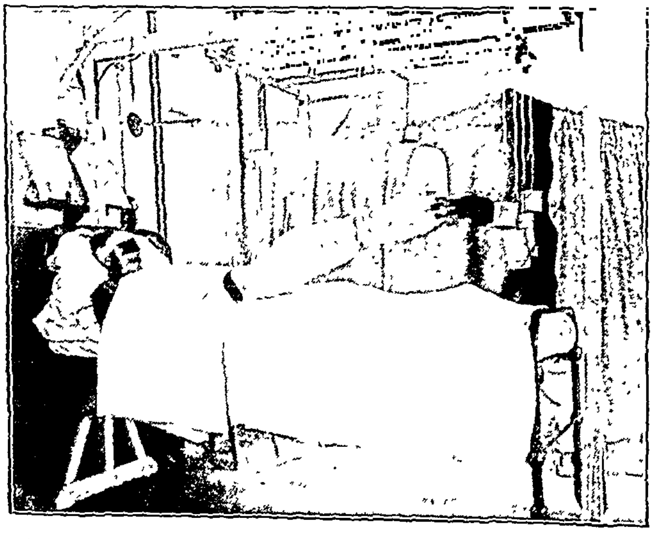


Fig. 2.—Suspension appliance as used for a fractured femur put up in an extension splint.

Figure 3 shows how the use of the appliance may be extended to the more severe cases in which the back as well as the lower limbs are injured. Here a small hammock which goes under and supports the shoulders is suspended from the two upper screw-eyes of the trolley. While it does not actually suspend the patient in midair, yet the hammock under the shoulders and the suspension attached to the splint on the fractured femur bear most of the patient's weight and vastly increase his comfort.

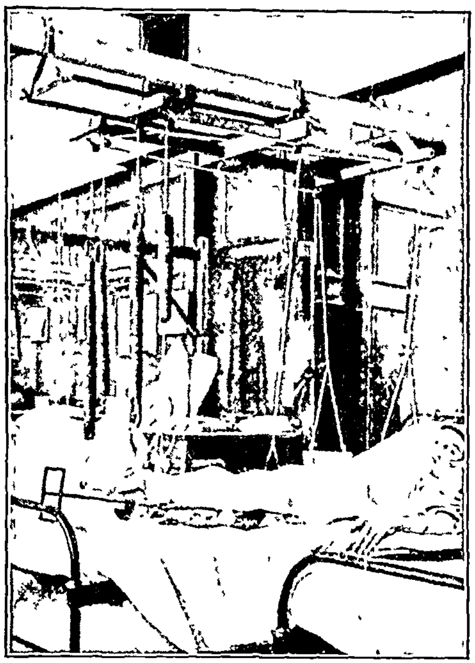


Fig. 3.—Suspension appliance as used for a fractured femur put up in a Thomas splint. The appliance is also used to support the back, which was severely sprained.

The benefits of such an appliance are obvious, and one needs but speak to a patient who is treated in this way to learn of the relief afforded. The patient can move his limb up or down at will, and also by raising himself slightly with his elbows can move up and down the bed. The nurses or orderlies attending the patient profit immensely, for it is not necessary for them to lift and move the patient while changing dressings, arranging the bed, etc., for the patient shifts his position himself.

The therapeutic gain from the apparatus is not the least of its benefits, for by increasing one or the other of the weights or by changing the supporting pulleys from one set of screw-eyes to another, any desired rotation or abduction may be secured.

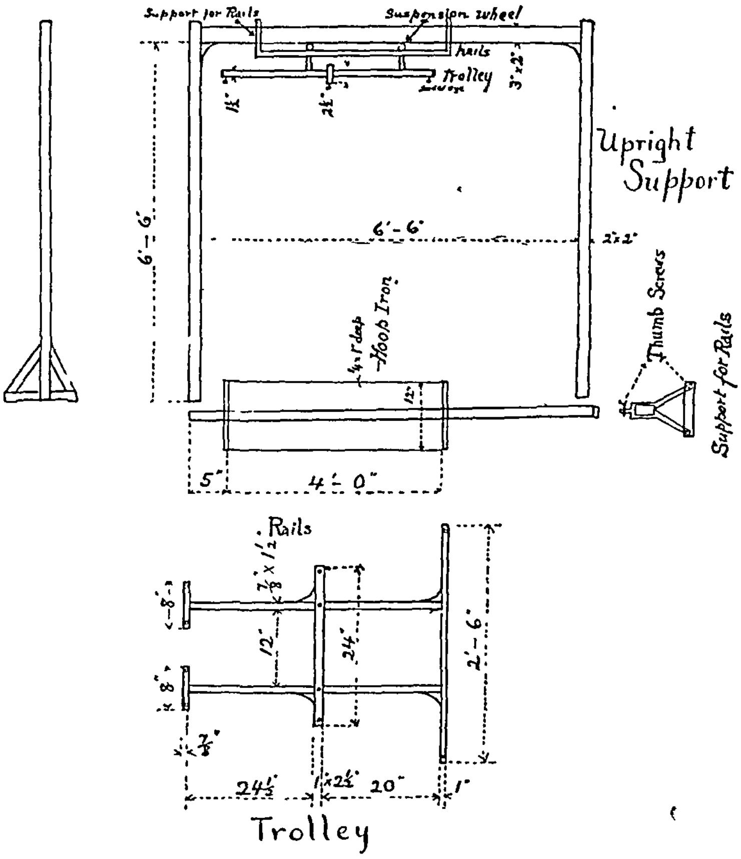


Fig. 4.—Section of apparatus.

The use of the appliance may be extended by attaching a horizontal crossarm half way up the upright at the foot of the bed. Then any pain caused by the pressure of the Thomas or extension splint in the groin may be relieved by elevating the foot of the bed and attaching to the end of the splint an additional rope which runs through a pulley on this crossarm and is balanced by a weight. In this way extension is secured and the patient can also move on the bed.

The cost of this apparatus is very slight, and any carpenter can make it, from the diagram (Fig. 4), which gives the various measurements.

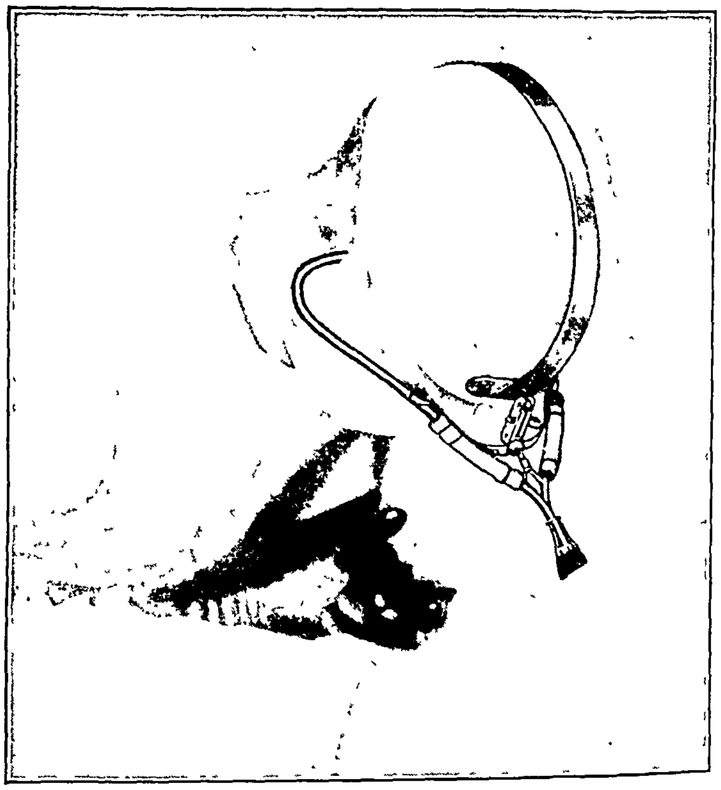
923 North Broadway.

ATTACHMENT FOR THE STETHOSCOPE

David S. Hillis, M.D., Chicago

Attending Obstetrician, Cook County and Provident Hospitals; Assistant Obstetrician, Chicago Lying-In Hospital; Instructor in Obstetrics, Northwestern University Medical School

Frequent observation of the fetal heart tones during the last part of the second stage of labor presents certain technical difficulties after the attendant is surgically prepared for the delivery. In breech labors in which the heart tones must be watched very carefully, it is always desirable and often necessary for the operator to observe the heart tones himself.



Attachment for the stethoscope facilitating the observation of heart tones.

In order to make this easily possible, an attachment for the stethoscope was devised which consists of a metal band such as is used on a head mirror, passing from front to back over the top of the head. The Y of the binaural stethoscope is fastened to the front plate of this band by means of a short spiral spring and a universal joint which is capable of being made rigid by a thumb screw. This permits proper adjustment of the ear pieces and holds the stethoscope in a position above the line of sight at right angles to the forehead. The spiral spring gives enough flexibility to the bell of the instrucent to make it easily adaptable to the surface.

An experience of several months with its use at the Chicago Lying-In Hospital indicates that it has the following advantages:

It gives easy and accurate control of heart tones.

After adjustment, no handling is required.

Heart tones are heard better, since there is bone conduction through the metal parts of the instrument, in addition to the air conduction of the ordinary stethoscope.

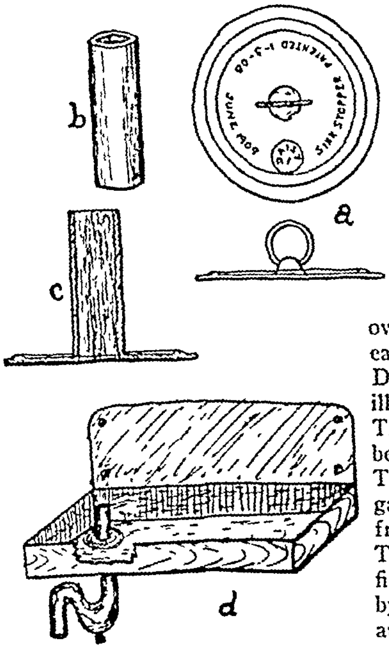
The bell may be pressed firmly against the abdominal wall without interference from muscle sounds.

RUBBER SINK STOPPER AND OVERFLOW DRAIN FOR ROENTGEN-RAY DARK ROOM

Jack Witherspoon, M.D., Nashville, Tenn.

Physicians who are engaged in Roentgen-ray work, and especially those who develop their own plates and films, will appreciate this contrivance to do away with the pan for washing plates. The ordinary No. 3 sink will accommodate 14 by 17 plates, chest plates, and two or more 8 by 10 or smaller plates, and this size sink should be in the dark room. It should be enameled for purposes of easy cleaning.

The contrivance is a rubber sink stopper and overflow drain cheaply and easily made. A 10 cent Daisy sink stopper, as illustrated, is purchased. This is a flat disk of rubber 4½ inches in diameter. Two inches of stiff rubber garden hose are obtained from the hardware dealer. The tube is vulcanized firmly on the sink stopper by the man who repairs automobile tires. The ring under the tube is cut out. One now has an overflow sink stopper which will adhere to the strainer of the sink by suction, and will keep 2 inches of running water in the sink.



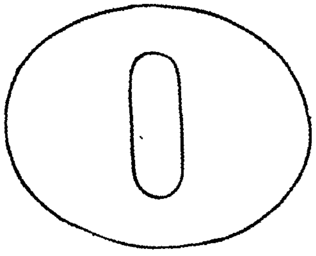
Rubber sink stopper and overflow drain; *a*, stopper; *b*, tube; *c*, tube vulcanized to stopper and ring cut out; *d*, sink with contrivance in position.

216 Doctors' Office Building.

A MODIFIED BIFOCAL LENS

Arthur J. Hill, M.D., Canton, Ohio

The ordinary bifocal lens is of no use to the presbyope who uses a headmirror or headlight. If he will have a 12 by 24 mm. segment of the proper strength cemented vertically on the center of his distance correction (as in illustration), he will have all the advantages of his near correction and be able to see at a distance by simply turning his head to one side or the other and looking in the opposite direction.



Modified bifocal lens.

A SIMPLE INCUBATOR

Arthur Julius Skeel, M.D., Cleveland

Fellow of the American College of Surgeons; Associate Clinical Professor of Obstetrics, Western Reserve University, School of Medicine; Obstetrician, St. Luke's Hospital

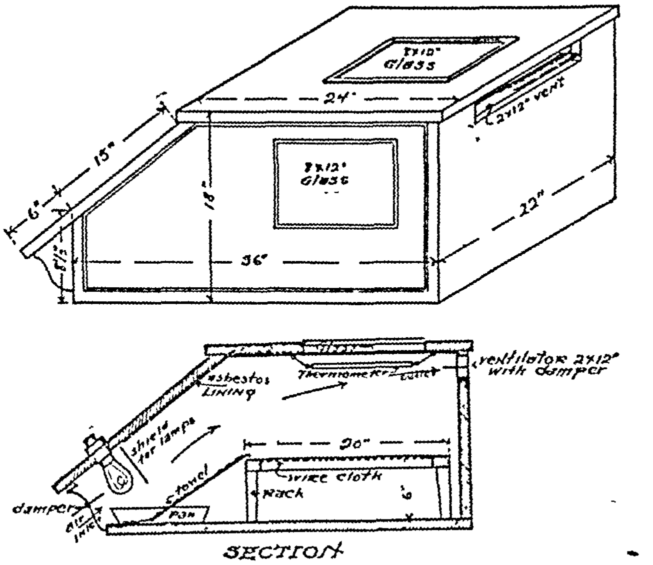
The success which we have had with an inexpensive and simple incubator, whch I devised for our use at St. Luke's, together with a number of requests from physicians, leads me to publish this description. The incubator as presented provides equable safe heat, adequate moisture, and a constant supply of circulating air. With ordinarily intelligent supervision it is absolutely safe.

On two points in its management emphasis must be placed:

1. The electric light bulbs must be shaded to protect the infant's eyes from the light.

2. The incubator must be kept at a higher temperature than that of the room air to insure circulation.

It consists of a large box with an air inlet opening near the base at one end, and a similar air outlet near the top at the other end. The heat is supplied by a row of electric lights (other heat units may be used, but light bulbs are always available) located at the air inlet; the heated air rises, passes over the child, and escapes at the upper or air outlet opening. This provides a constant current of warmed air. The air is moistened before it reaches the baby by means of a towel placed on a slanting rack. The lower end of this towel is in a pan of water on the floor of the incubator, and capillarity keeps the entire towel moist. The rising heated air strikes this wet surface and takes up moisture.



Incubator.

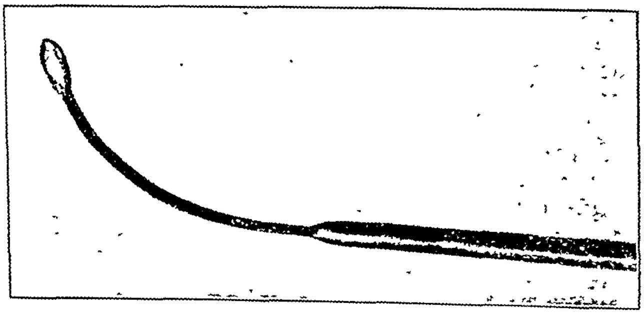
To guard against accident, we lined the wooden box with sheet asbestos. This also renders the box easy to heat. Glass panes in the sides and on the lid expose to view the baby, and a thermometer by which the temperature is regulated. The air inlet and outlet are provided with a slide or damper by means of which the size of the openings may be regulated.

The exact temperature at which the incubator is kept may easily be regulated by the number of lights kept burning.

AN INSTRUMENT TO AID RETROGRADE SOUNDING OF URETHRA

J. L. Stevens, M.D., Mansfield, Ohio

This is an olive-tipped bougie, the curved part of which is a steel spring, which allows it to straighten during passage through a straight cannula. The bladder should contain 150 c.c. or more of fluid. A trocar and cannula are inserted into it above the pubes in the usual way, and the trocar is replaced by the bougie without allowing the fluid to escape. If the full curve is not desired in searching for the urethra, the spring part should not be entirely passed through the cannula. After the entrance to the urethra is found, the flexibility of the spring will allow the tip to follow the urethra.



Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 849*)

SYMPTOMS IN CHRONIC NEPHRITIS

An acute diffuse nephritis, in which the parenchyma of the kidneys is most seriously affected, produces somewhat different symptoms than a chronic diffuse nephritis in which the interstitial tissue is most involved. As previously stated, it is better to consider the pathology of chronic nephritis than to consider parenchymatous and interstitial nephritis as two different types of kidney disease, as neither type occurs alone.

The general symptoms of chronic nephritis may be thus tabulated:

1. Changes in the urine as to frequency, color, specific gravity and abnormal content.
2. Headache, generally occipital, but often frontal, general or hemicranial.
3. Indigestion, with perhaps nausea and vomiting.
4. Diarrhea attacks preceded and followed by constipation.
5. Mental apathy or great irritability.
6. Insomnia, in a later stage of the disease followed by somnolence.
7. Dyspnea.
8. Edema of the face, hands or feet (not always present).
9. Intermittent eye and ear disturbances.
10. Enlargement of the heart (hypertrophy, dilatation).
11. High blood pressure.
12. Neuralgias.
13. Anemia.
14. Retinal change.
15. Dropsy or marked localized exudate (many patients show no edema or dropsy).
16. Terminal inflammations (pericarditis, etc.).
17. Uremia (convulsions and coma).

The amount of urine passed varies with the different forms of nephritis; in interstitial nephritis, or so-called contracted kidney, with high blood pressure, typical Bright's disease or cardiovascular-renal disease, the amount of urine passed in twenty-four hours may be large, especially the amount passed during the night. A marked diminution in the amount of urine passed, especially if the specific gravity is low and the excretion of solids and toxins is not sufficient, causes headache, restlessness, insomnia, indigestions, myalgias, muscle twitching and, if the excretion is sufficiently diminished, symptoms of uremia. Suppression of urine, however, may last several days without uremia. On the other hand, uremia may occur in chronic contracted kidneys even when a large amount of low specific gravity urine is passed. In the early stages of chronic diffuse nephritis the urine may be very scanty. It may be highly colored and of high specific gravity, loaded with albumin and casts, and frequently contains traces or even tangible amounts of blood. In chronic diffuse (parenchymatous) nephritis, all varieties of casts may be found—hyaline, epithelial, granular, fatty and waxy.

Every type of headache, a feeling of fulness in the head, dizziness, ringing of the ears, irritability, restlessness, insomnia, loss of memory, stupidity or actual somnolence may occur in different stages and in the different types and conditions of chronic nephritis. Head symptoms may be the first indications of this disease, especially of the interstitial variety. The patient may awaken every morning with a headache or headaches may recur as acute attacks, accompanied by vomiting, a diminished amount of urine, and generally an increased blood pressure. Cerebral apoplexy may occur with any type of chronic nephritis, but it is most frequent in the interstitial variety.

Dyspnea is a very frequent symptom in chronic nephritis. It may be due to disturbance of the cerebral circulation, slight acidosis, hypertension or cardiac disability.

Gastric indigestion is usually a symptom of chronic nephritis. This condition is accompanied by anorexia with a special distaste for food in the morning. The patient complains of a bad taste in the mouth, especially noticeable in the morning, and of a bad tasting fluid which collects in the mouth during the night. The tongue is more or less coated, and often typically coated in irregular patches with small regions from which the coating is absent. This condition of the tongue is typical, though not pathognomonic, of advanced chronic nephritis. There is more or less distress after eating, with flatulence, pyrosis, nausea or vomiting, according to the ability of the kidneys to excrete and to the sufficiency of the circulation. Insufficient circulation with damming back of blood in the portal system, combined with liver congestion and impaired kidney function, causes gastro-intestinal indigestion which is hard to combat. Frequently vomiting resulting from this condition is one of Nature's methods of relieving the system of toxins, the kidneys being insufficient.

Irregular attacks of diarrhea, not excused by mistakes in diet or changes of temperature, often occur in chronic nephritis. These attacks usually occur when the amount of urine is scanty or the excretion of solids is diminished, and is another of Nature's methods of eliminating a certain amount of toxic products. This relief of vicarious excretion, however, is only a momentary help to the system. On the other hand, constipation is a menace in chronic nephritis, as congestion of the portal circulation, and consequently of the liver and stomach, may have serious results. However, while constipation should be relieved, profuse purging, except occasionally, is not advisable, particularly if the heart is weak.

Edema is usually first noted in the face, in the form of puffing under the eyes in the morning, which disappears after the patient has been up for a while; sometimes one or both hands are swollen in the morning, and there is perhaps some swelling of the hands or feet in the late afternoon and evening. Backache, perhaps due to edema of the tissues in the lumbar region, may be evident in the morning. In the later stages of the disease edema may be present in any part of the body, located either symmetrically or asymmetrically. It may persist all day, general anasarca may develop, and there may be an exudate into various cavities of the body. On the other hand, when the interstitial type of nephritis is predominant and the heart is sufficient, the disease may progress to uremia and death without evident edema.

The eyes may show numerous symptoms and signs in nephritis. There may be eye-strain headaches, momentary eye blurring, or things may "turn black before the eyes," as the patient describes the condition, such blurring lasting but a moment. There may be neuroretinitis or hemorrhages into the retina, that is, typical nephritic retinitis; and there may even be fatty degeneration of the retina. Albuminuric retinitis, which simply means retinitis associated with albuminuria, is a serious symptom and foreshadows an unfavorable development of the case.

The patient frequently experiences ringing in the ears or partial loss of hearing, probably most frequently due to arterial degenerations or to high blood pressure, and less frequently to central brain disturbances or to some nerve lesion in the internal ear.

If chronic nephritis develops rapidly, the heart may not be much hypertrophied, and cardiac weakness may be evidenced from the beginning. If chronic nephritis develops slowly — unless the heart is degenerated or has been impaired by some lesion — the left ventricle, especially, becomes greatly enlarged in its effort to overcome the increased resistance in the arterial system and the increased blood pressure. This is Nature's method of compensation to compel enough urine to pass through the diseased kidneys to effect sufficient elimination. It can readily be seen that the more slowly chronic nephritis develops, the more circulatory compensation will develop. In cardiac disease, especially in valvular lesions, with long continued sluggish circulation in the veins, particularly of the abdomen, congestion of the kidneys and a slowly developing diffuse nephritis occur. We then have a chronic inflammation of the kidneys superimposed on the heart lesion. This type of kidney disturbance will often greatly improve, even when apparently serious, with treatment aimed to improve the circulation.

A frequent type of chronic nephritis, with the interstitial type predominating, is that which is now recognized as cardiovascular-renal disease, or true Bright's disease. This slowly developing insidious nephritis is preceded by a long period of hypertension and cardiac hypertrophy, and is soon associated with more or less chronic myocarditis. The time to impede the progress of this disease is during the stage of previous hypertension. The manner of its final termination — whether by apoplexy, angina pectoris, cardiac dropsy, or uremia — depends on which of the three organs affected is most diseased. The danger to the heart and to the cerebral arteries through high blood pressure is well understood, and the necessity of generally lowering hypertension, whether or not the kidneys are much involved, is now generally recognized. A systolic pressure of over 150 mm. at any age should cause the patient to be carefully examined to determine whether or not an attempt to reduce this pressure would be wise. A systolic pressure of over 200 mm. has long been supposed to indicate kidney disease. This is not always true, but it is a pretty safe working rule to suspect the kidneys when the pressure is at such a height. The most significant indication of kidney insufficiency is a diastolic pressure of 120 mm., and if that pressure is over 110 mm. there must be serious doubt as to the condition of the kidneys. Any diastolic pressure of 110 or over should be reduced, if possible. If the diastolic pressure is below 100 mm., even if the systolic is 160, there may be no need of attempting to lower the pressure, but a systolic pressure above 170 requires such an attempt to be made. If a previous high pressure becomes suddenly diminished without treatment, myocardial weakness has developed and more or less dilatation will soon be in evidence. If treatment causes too great a drop in blood pressure, especially in the systolic pressure, the treatment is too strenuous, and the patient feels weak and incompetent.

A frequent condition in chronic nephritis is pain in one or more nerves, and an actual neuritis may be experienced. These pains probably are frequently caused by an imperfect elimination of irritants or toxins from the blood, and some particular nerve or nerves subjected to injury, muscle strain or occupation tire is the first nerve or set of nerves to be affected. Before any local treatment is of much avail, the kidneys and blood must be in the best possible condition. If the patient is uremic, neuralgic pains may be so intense as to require hypodermic injections of morphin.

There probably will not be much pain in the region of the kidneys in chronic nephritis, although there may be a backache resulting from some edema in the tissues of the back, which will be especially noticeable on arising in the morning. This kind of backache usually disappears soon after the patient arises. A pain in the kidney itself is probably due to a surgical condition, such as a calculus, tumor, or some distention of the pelvis of the kidney.

The stage in chronic nephritis at which anemia will occur depends on the amount of albumin lost, the oozing of blood from the kidney, and the disarrangement of digestion and assimilation. Besides the direct loss of nutriment from the blood and the direct loss of blood corpuscles, the toxins circulating in the blood probably interfere with the nutrition of the bone-marrow, and the red blood corpuscles are probably not produced in normal numbers, or at the normal rate. In the treatment of chronic Bright's disease, thoughtlessness is frequently displayed in not protecting the blood from deterioration. To relieve the irritation of metabolic substances in the kidneys, and other signs of toxemia, too much purging is resorted to, and a rigid diet (withdrawal of all meats) too long continued. If it is advisable not to allow a patient meat, iron must be given, and he should receive enough vegetable proteins to keep up his normal metabolism; otherwise he will become anemic from the treatment alone.

Terminal inflammations are liable to be associated with uremic conditions. By a terminal inflammation is meant some associated condition which would probably not cause death under ordinary conditions, but which, when associated with chronic nephritis, is dire and fatal. A simple infection like tonsillitis, grip, a slight infection of the bladder, slight prostatic disturbance, and acute infections, such as pneumonia, may rapidly increase the seriousness of chronic nephritis, and the patient may die of uremia or of a combination of the two conditions. Edema of the lungs in these associated conditions is of frequent occurrence. Pleural exudate, pericardial exudate or ascites may rapidly develop with the fever process. The amount of urine excreted may rapidly diminish and uremia develop, whereas if the acute condition had not occurred, the chronic nephritis may have continued slowly advancing for years.

Besides the cerebral symptoms already mentioned, there is occasionally great mental depression verging on melancholia, and frequently excessive irritability and a discouraged and pessimistic frame of mind. There may be loss of mental fixation, poor memory, slight momentary attacks of aphasia, lack of good judgment, and a tendency toward repetition. These patients are often easily fatigued by either physical or mental activity. These symptoms usually occur with the arteriosclerotic or senile kidney.

The relation of acidosis to dyspnea has received considerable study. Some investigators believe it is a prominent cause of dyspnea. Acidosis, however, is not the only cause of dyspnea in cardiorenal disease; nor is this disease necessarily accompanied by dyspnea. Furthermore, the amount of acidosis does not seem to be related to the nonprotein nitrogen retention.

(*To be continued*)

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SATURDAY, MARCH 24, 1917

THE TOXEMIA OF INTESTINAL OBSTRUCTION

The nature of the toxemia of intestinal obstruction has been a subject of interest and debate in the past few years. The clinician has the problem presented to him in practice repeatedly in most acute forms; the laboratory worker is perplexed by the apparently irreconcilable conflicts of experience and experiment. The concentration of the energies of a number of capable American investigators on the questions raised is certain to bring clarity into the matter before long; indeed, the accumulating evidence begins to show that more than one factor undoubtedly is responsible for the death from obstructed intestine. When the great mass of experimental data is once critically evaluated, a rational explanation is likely to be forthcoming.

In the past, individual schools have dwelt too exclusively on a single aspect of the problem. Three classic explanations were early devised for death in obstruction: first, infection; second, nervous reflexes; third, intoxication. The last explanation has been advanced in two forms, intoxication being explained as due to noxious substances of bacterial origin in the obstructed bowel, or as the result of an actual toxic secretion by the glandular structures of the alimentary tract.

Whipple,[1] who has been prominent in the study of this problem, has advanced the theory that the intoxication of intestinal obstruction and closed intestinal loops is due to the absorption from the intestinal mucosa of a definite proteose. He believes that the evidence for the intervention of bacteria in the situation is not at all conclusive, whereas there can be no question that the intestinal mucosa is essential to the production of the poison. Bacteria alone cannot form it.

A recent contribution[2] stimulates interest anew, and is likely to provoke further critical discussion of the question. In confirmation of the results of previous investigators, it has been found that dogs with an isolated closed loop of duodenum or jejunum die in from forty-eight to ninety-six hours, in most cases with perforation of the isolated loop and general peritonitis. But there is usually no excessive vomiting and hence no fatal dehydration of the body tissues. The dehydration factor has been made responsible by some of the investigators for the severe symptoms of intestinal obstruction. When the isolated and closed loop of the jejunum is sterile, complete occlusion of the blood vessels to the isolated loop has no effect on the dog; but if the loop is not sterile, the occlusion of the circulation in the loop causes death in from twenty-four to forty-eight hours with the usual symptoms of complete intestinal obstruction.

An abundant series of experimental observations has seemed to the Chicago physiologists to warrant the following conclusions:

> Closed intestinal loops in which the bacteria are first removed are not incompatible with life. Closed intestinal loops in which bacteria are present but in which tissue necrosis is prevented are not incompatible with life. Closed aseptic intestinal loops in which the blood supply is completely shut off are not incompatible with life. The normal secretions of the duodenum and jejunum are not toxic when allowed to drain into the abdomen cavity.

These results, we are reminded, do not support the theory of Draper of a normal toxic secretion of the duodenal mucosa, neutralized by the jejunal mucosa, or the perverted secretion theory of Whipple. In obstructed loops of bowel, occlusion of the circulation by distention from accumulated secretion may easily arise. Necrosis follows, and bacterial toxemia completes the story. Thus the Chicago investigators conclude that bacterial activity plus the necrotic tissue or the result of the action of bacteria on necrotic tissue are the important factors in the rapid death in simple closed intestinal loops.

THE PANCREAS AND MUSCLES IN SUGAR METABOLISM

In the current of the sciences, just as in the life of man, von Fürth[1] wrote not long ago, there are periods when every good intention and the most honest effort are insufficient to make any decisive and productive progress possible; evil days when ability is compelled to employ a good part of its innate energy to keep from sinking into dejected inefficiency. Then suddenly some new event changes the situation and brushes aside the impediments which have opposed the free development of the long accumulated latent energy. At once a period begins of heightened, feverish activity which endeavors to make up for all that was missed in the dull times of stagnation. The discovery of the relation of the pancreas to diabetes represents one of these unusual events. Since its announcement in 1889 there has been the liveliest discussion as well as a truly enormous amount of investigation directed to the interpretation of the unique relationship which makes carbohydrate metabolism in the body concerned with a gland formerly supposed to be involved solely in the secretion of a digestive juice.

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[1] Whipple, J. H.: Intestinal Obstruction a *Proteose Intoxication*, The Journal A. M. A., Aug. 7, 1915, p. 476.

[2] Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: The Nature of the Toxemia of Intestinal Obstruction, Proc. Soc. Exper. Biol. and Med., 1916, **14**, [illegible].

[1] Von Fürth, O.: The Problems of Physiological and Pathological Chemistry of Metabolism, Philadelphia, 1916, p. 247.

Extirpation experiments on animals established the essential facts; histologic studies, particularly in relation to the islands of Langerhans, furnished important contributory evidence; blood transfusion, parabiosis and other physiologic technics have been devised to unravel the underlying factors; the biochemistry of hormones and enzymes and the methods of immunology have furnished analogies for tests in vivo and in vitro — and yet we are still compelled to ask what part the pancreas plays in the utilization of sugar. Does the pancreas furnish an internal secretion; and, if so, how does the latter function? Does it supply an activator to facilitate the disruption or oxidation of the sugar molecule? Or is it merely concerned with a proper mobilization of carbohydrate, working perhaps in harmony with other secretory agencies in the body?

To ask these questions is a confession of the ignorance which we must admit of one of the most fundamental problems of physiology and pathology. When older methods of inquiry are exhausted without furnishing a decisive reply, and when conventional points of view fail to lead to new advantages, every novel experiment or mode of approach is heartily welcomed. As the muscles with their heightened local demand for energy doubtless are the seat of utilization of sugar, it has frequently been suggested that the pancreas furnishes something which facilitates the destruction of the carbohydrate in muscle. The isolated surviving heart has been used by a number of investigators as an appropriate muscular organ for such studies; but there are great discrepancies between the findings of different workers with respect to such questions as the comparative sugar utilization of the heart of the normal and the diabetic subject, or the effect of pancreatic extracts on such muscular metabolism.

The reason for these disagreements, often due to a faulty experimental technic, need not be related here. The latest attempt[2] to solve the difficulties has benefited by the errors and lessons of the past in the attempt to gain some evidence as to the possible interdependence of pancreas and muscles in sugar metabolism. The new experiments conducted in the Hunterian Laboratory of Experimental Pathology at the Johns Hopkins University indicate that the pancreas, when perfused aseptically with Locke's solution containing physiologic concentrations of glucose, does not alter the reducing properties of the solution. This means that the sugar itself is not changed in this organ. The pancreas, however, seems to supply to the perfusing fluid circulating through its arteries something which in some way brings about a utilization of sugar by a typical muscle, such as the heart, to an extent which does not occur with the cardiac musculature unaided. This was ascertained in trials in which the isolated heart and pancreas were simultaneously perfused with the same fluid.

This newly discovered but unisolated and unidentified pancreatic substance possesses some of the characteristics of an enzyme. It is inactivated by heat; it is unstable; it acts in small amounts; it accelerates a reaction which otherwise proceeds at a slower speed. These are not the distinctive properties of a stable hormone. Sugar actually disappears, presumably by oxidation or hydrolysis. The question naturally arises as to whether the hypothetic substance is identical with the long postulated internal secretion of the pancreas so essential to carbohydrate metabolism. Clark says, with appropriate reserve, that though the outcome of his work involves observations on the heart and pancreas isolated from the numerous interrelating factors usually occurring in the body, the evidence suggests at least that the substance or substances obtained experimentally by perfusing the pancreas may be concerned in the normal activity of that organ on sugar metabolism.

THE PRINTED PAGE AND TIRED EYES

Of the varied factors which enter into life and contribute to the fatigue which sets the physiologic limit to continued activity, some seem to be sufficiently emphasized while others are almost always overlooked or underappreciated. The bodily weariness which attends the vigorous use of the skeletal muscles in work or in play is generally so insistent for recognition that we appreciate its significance and promptly give heed to it. In addition to these muscles, however, we are constantly depending on our organs of sense to furnish the data which determine in large measure the entire course of daily life not only in its physical but also in its mental aspects. Without sight, touch and sound — not to mention the lesser senses — most of what is valued in human experience and performance is lost. Nevertheless little attention is usually paid to the possibility of fatigue of the sense organs and the functional structures associated with them.

Perhaps this statement as to the current indifference to possible overwork of our organs of sense should be modified in reference to the eye, for it is not unusual to hear of the existence of eye-strain. It has been well stated that the strain of modern life is sometimes special rather than general, so that strain comes on some organ or muscle. Indeed, industry has become so specialized that the worker may strain one part of the body while other parts are in need of exercise. No one can bring the charge of lethargy to the eye, even in the most phlegmatic person. Whatever may be the condition of the rest of the body during waking hours, the organ of vision is almost continuously "on the job."

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[2] Clark, A. H.: The Interrelation of the Surviving Heart and Pancreas of the Dog in Sugar Metabolism, Jour. Exper. Med., 1916, 24, 621.

A little physiologic reflection will make it evident that the proper use of the eyes depends on a diversity of conditions in part personal and in part environmental. The need of suitable illumination is abundantly recognized; but the adequacy of the light factor is governed in no small measure by the situation. The light of the stars on a clear evening may easily suffice to enable us to avoid large obstacles in our path. In moonlight the problem of orientation becomes much easier. A driver or a farm laborer can comfortably continue his usual activities under conditions of waning light in which a watch maker, a type setter or a copyist has been forced to abandon his assigned task owing to the inadequacy of the illumination. In other words, the use of the eyes is limited to the available light, the requisite intensity of which in turn depends on the size of the objects which engage the attention of the person, the color of these objects, and the speed with which they must be envisaged. In view of the obvious fact that the use of the eyes is fundamental in daily life, it is surprising that the hygiene of the organs of vision, particularly the determination of the most appropriate conditions for their healthy functioning, receives so little popular consideration.

Let us examine the immediate problem somewhat more closely. Both surplus and deficiency of light may lead to harm for the eye; but the dangers from the lack of adequate illumination are apt to be the more frequent. The work of seeing is rendered more difficult, so that a strain ensues. Perfection of vision is promptly impaired by diminished illumination. Under these conditions it becomes necessary to approach nearer to the object in order to see it distinctly. The work of ocular accommodation is greatly increased. The muscles of accommodation are exercised unduly. In young eyes myopia becomes one of the untoward consequences. It is unnecessary to carry the analysis farther to indicate the hygienic import of the question of illumination. A recent book, in discussing the subject, says:

> Eye-strain is to be prevented by scientifically adapted spectacles, by care to secure the right kind of illumination, and in some cases by systematically resting the eyes. . . One should be especially careful not to read in a waning light or, on the other hand, to read in the glare of the sun.[1]

Reading undoubtedly furnishes one of the major occupations for the eyes; yet, as will be seen from the foregoing typical quotation, one will search almost in vain for any consideration of the size of the object concerned in this employment of eyesight. Strangely it has remained for others than the students of hygiene to call attention to the unfortunate make-up of much modern printed matter from the standpoint of acceptability to the eye. It requires little serious reflection to appreciate the fundamental importance, for eye health, of the legibility of type. The librarian of the St. Louis Public Library, Dr. Arthur E. Bostwick,[2] is the latest to bring the seriousness of the situation to public attention. Tired eyes, he says, belong for the most part to those who have worked them hardest; that is, to readers who have entered on middle age or have already passed through it. At this age we become conscious that the eye is a delicate instrument—a fact which, however familiar to us in theory, has previously been regarded with aloofness. Now it comes home to us. The length of a sitting, the quality, quantity and incidence of the light, and, above all, the arrangement of the printed page become matters of vital importance to us. A book with small print, or letters illegibly grouped or of unrecognizable shapes becomes as impossible to us as if it were printed in Chinese.

Legibility is not merely a matter of the size of type. Form, heaviness of face, the width of the margin around the letter, position in the letter group, and the shape and size of adjoining letters also require consideration. For "tired eyes" the size factor would appear of overwhelming importance except where the other elements make the page fantastically illegible. Such, all too few, studies as have been made on this subject, particularly in relation to schoolchildren, for whom alone the need of large type is recognized in relation to the undeveloped eye, indicate, according to Bostwick, that 10-point type is the smallest size fit for any one, however good his sight.[3]

The recommended sizes of type run from 30-point, for 7 year old children, to 10-point or 11-point for persons more than 12 years old. Bostwick remarks that this would bar much of our existing reading matter. In the gathering for "tired eyes" of a decidedly unique collection of books in large type for the St. Louis Library, 14-point was decided on as the standard. Out of nearly 400,000 volumes it was found by diligent search that only 150 would answer this description. The final result of the St. Louis effort has been an accumulation of a few more than 400 volumes, despite the fact that 1,000 publishers in this country are annually issuing 11,000 volumes, to say nothing of the British and continental output.

In view of the omnivorous reading habits of the American public, one other factor deserves notice here. The possible influence of short lines on legibility deserves consideration in the propaganda for sane typography. Quoting Bostwick, we may recognize that the eye must jump from the end of each line back to the beginning of the next, and this jump is shorter and less fatiguing with the shorter line, though it must be performed oftener. The adaptation of the eye to a standard length of line is surely not without moment. New lengths, as one finds them in special magazines or other publications, are not so easily read. Bostwick ventures the opinion that the reason for our continued toleration of the small type used in the daily newspapers is that their columns are narrow, and still more, that these are everywhere of practically uniform width. If books, magazines and reading are to remain as our inheritance, what better conservation movement can we initiate than one to ascertain and introduce rational standards for the printed page?

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[1] 1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1915, p. 93.

[2] 2. Bostwick, A. E.: Books for Tired Eyes, Yale Rev., January, 1917, p. 358.

[3] 3. A "point" is the current standard unit of measure for the size of type bodies. It represents about 0.013 inch. The editorials in The Journal are printed in 10-point type with 2-point leads between the lines; this footnote is in 6-point type.

THE HEMOGLOBIN CONTENT OF THE BLOOD IN HEALTH

There is perhaps no fluid or tissue of the living body with which the clinician is more seriously concerned than the blood. On the quantity of certain of the blood constituents found in individual cases some of the most important deductions with respect to diagnosis and prognosis are often based. It will doubtless, therefore, come as a surprise to many who are almost daily concerned with questions involving the concentration of one or the other of the blood constituents, to learn that few adequate analyses are at present available. Thus three of the most recent and representative textbooks on physiology and physiologic chemistry still quote the old data of C. Schmidt published in 1850 in elucidation of the quantitative composition of human blood.

In pointing to the paucity of dependable knowledge, particularly with respect to the content of hemoglobin in human blood, Williamson[1] rightly complains that what facts are possessed on the subject date mostly from the work of Leichtenstern.[2] He says that to the thoughtful clinician it has long been a matter of keen regret that the examination of the blood which is perhaps most frequently made in routine practice, namely, the estimation of the percentage of hemoglobin, is the one from which we generally derive the most unsatisfactory results. Aside from the glaring defects in some of the instruments in common use, this has been due to the fact that we have had few accurate data as to the variations in the amount of hemoglobin at different ages. It is currently stated, in contrasting the two sexes, that the amount of blood corpuscles is somewhat smaller in woman's blood; and the average amount of hemoglobin is given as 133 per thousand, in contrast with 146 per thousand for man's blood. Several investigators have pointed out that fetal and infant blood is richer in erythrocytes and hemoglobin than is the blood of the mother. The highest content of the blood pigment has been described as occurring immediately, or soon after birth. In man the figure for hemoglobin has been said to reach 210 per thousand at this period. The older statistics indicated that it gradually sinks to about 110 per thousand between the fourth and eighth years, with a second maximum of from 137 to 150 per thousand at the twentieth year. After the forty-fifth year, according to Leichtenstern and to Otto, the content slowly decreases. One also finds long cherished and reiterated indefinite statements regarding a gradual increase in the amount of hemoglobin in the blood of man when his diet is "enriched," and the blood of lean persons is reputed to be somewhat richer in hemoglobin than blood of corpulent ones of the same age.

In view of so much that is inadequate and uncertain, based as it is on a limited number of observations made with the older technic and less rigorous methods of analysis, the contributions of Williamson are to be welcomed. His new hemoglobin estimations have been made by the exceptionally accurate method of spectrophotometric analysis. Covering as it does the blood of more than 900 healthy persons of both sexes, at ages ranging from 1 day to over 76 years, this wealth of new statistics overshadows previous compilations.

A detailed examination of these elaborate analyses would be out of place here. Certain generalizations derived from them deserve emphasis, however. The amount of hemoglobin in the blood of normal persons varies greatly at different ages, and follows a well defined curve. These age variations are so great that, in determining whether a given blood contains more or less hemoglobin than normal, it is imperative to consider the age. These variations are greatest from birth to the sixteenth year. Between the ages of 16 and 60 there is a marked difference between the two sexes, this difference growing less after the sixtieth year. In view of these facts, Williamson says it is evident that hemoglobinometers should be standardized in absolute terms, most conveniently in grams of hemoglobin per hundred c.c. of blood. Because of the superior accuracy attained, it is highly desirable that the standardization of the hemoglobinometers should be spectrophometrically controlled. Whether a given blood contains a greater or less amount of hemoglobin than the normal can be determined only by a comparison of the absolute value obtained by a hemoglobinometer thus standardized, with the normal value for that age and sex as now available from Williamson's statistics.

Potash.—A company making Portland cement at Durham, Ont., according to *Commerce Reports,* March 9, is now turning out as a by-product from the feldspar used from twelve to sixteen tons of potash daily. Both muriates and caustic products are produced, the former being said to be an almost pure product. Even the dust and gases of the plant are trapped, in which there is said to be 5 per cent. of potash, which is used for fertilizer. The chemist of the plant says that every cement plant in Canada should, within the next five years, be producing potash as a by-product. Immense deposits of feldspar are found in Canada, which contains at least 10 per cent. of potash, of which 86 per cent. in a pure form is collected. The cost of manufacture is said to be less than the freight charge per ton on that heretofore coming from Germany.

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[1] Williamson, C. S.: Influence of Age and Sex on Hemoglobin, Arch. Int. Med., October, 1916, p. 505.

[2] Leichtenstern: Untersuchungen über den Haemoglobingehalt des Blutes in gesunden und kranken Zuständen, 1878.

Current Comment

CONSERVE THE MUCOUS MEMBRANES

The mechanical efficiency of the sound skin as a protective agent against the invasion of the body by micro-organisms is obvious. Little credit for a similar protection is usually accorded to the mucous membranes. It is true that the latter do not furnish the same degree of resistance or immunity which the external coverings of skin afford. Nevertheless it ought to be realized that many organisms can be implanted with impunity on mucous membranes, especially on those portions which are engaged in the production of mucus or which are provided with a ciliated epithelium as a safeguard. The underestimated usefulness of the mucus secreted by the membranes of the nasal cavities is more easily appreciated when the circumstances to which they are exposed are related. It has been estimated that under normal conditions of life in large cities, from 15,000 to 20,000 bacteria enter the nose in an hour's quiet respiration. Yet under normal anatomic and physiologic conditions few of these organisms ever reach the nasopharynx in a viable condition.[1] To some extent at least the mucus secreted is responsible for this. It is reputed to have an inhibitory if not an actual bactericidal effect on germs;[2] and a liter of mucus per day has been reported as representing the amount of available secretion.[3] The highly specialized epithelium of the trachea and nose is further effective as a protection against unorganized dust. Perhaps if this were more universally recognized and taught, ciliated mucus-secreting membranes would be treated in a less irritating manner. How many physicians realize that when the ciliated cells are destroyed by caustics, operative procedures or disease, they are frequently replaced by squamous cells, and the efficiency of the nose as a protective organ is correspondingly impaired?

WORKMEN'S COMPENSATION LAWS UPHELD

Any question as to the right of the states to enact workmen's compensation laws has been permanently settled by the recent decision of the United States Supreme Court. Not only has the right and power of the state to enact such legislation been affirmed, but the three leading types of workmen's compensation legislation have also been declared legal. In Iowa, the law is elective, both employer and employee being at liberty to elect whether to work under the statute or under the common law principles regulating relations between employer and employee. But inducements are offered to the employer to come under the law by specifically removing the three common law defenses, namely, the fellow servant doctrine, the voluntary assumption of risk on the part of the employee, and contributory negligence on the part of the injured person; while it also offers inducements to the employee in the form of a fixed schedule of compensations for injuries in place of the uncertainty of a jury verdict or a court finding. The New York law is essentially compulsory, but allows the employer to carry his own risk or to insure in either a private insurance company or a state fund; while the Washington law is not only compulsory in its application, but much broader in its provisions, including domestic and farm laborers as well as industrial employees, and requiring all employers to insure in the state fund without admitting private companies in any way. All three of these laws were before the court for review, and they were all sustained so far as constitutionality is concerned. This decision settles the right of the state to enact workmen's compensation laws in any of the three forms which were before the court. The interest of physicians, therefore, will hereafter center in the securing of equitable terms and conditions for medical services.

CONTROL OF INTESTINAL BACTERIA

The use of various kinds of buttermilk and even of tablets containing lactic acid bacilli to prevent excessive intestinal putrefaction is more or less common. The followers of Metchnikoff maintain that by the use of such cultures it is possible to change permanently the intestinal bacterial flora in such a way as to reduce or eliminate the so-called putrefactive types of organisms and to increase the aciduric or lactic acid type, resulting in a decreased production of putrefactive products, such as indol, skatol and oxyacids, with a corresponding betterment of the conditions arising from the action of these substances. Hull and Rettger[1] have recently completed a comprehensive study of the factors involved in the change of the types of intestinal bacteria. They find that the direct feeding of bacterial cultures has almost no influence on the intestinal flora, even when preceded by immunization. The results of the latter procedure are not regarded as conclusive. The significant factor appears to be food. Inhibition of intestinal putrefaction was shown a number of years ago to be obtained by the substitution of carbohydrates for proteins in the diet, and a number of investigators have noted the partial disappearance of organisms of the type of *B. coli* and *B. welchii*, together with the increase of those of the lactic acid type in connection with the continued inclusion in the diet of a large amount of milk; but in some cases the results were attributed to other substances, for example, glucose, introduced with the milk. Milk is now shown to contain the important constituent, but with this food alone, while "a transformation of flora takes place," a "complete simplification" is not attained. Experiments with lactose feeding, however, show striking results leading inevitably to the conclusion that this sugar is essential for a permanent change in the intestinal flora, with the establishment of aciduric or lactic acid organisms, such as *B. acidophilus* or *B. bifidus*. Other carbohydrates have little effect. Milk, therefore, apparently acts through its lactose content. The aciduric type of bacteria finds its most favorable environment when lactose is present, as such, in the intestine. Lactic acid is not a factor. The beneficent action of milk cultures also is dependent on the lactose and not on the bacteria, for organisms of the type of *B. acidophilus* increase in the intestine rather than the bacteria taken with the milk. According to these writers, then, the control of the intestinal bacterial flora lies with the food — a combination of milk and lactose forming "the most practical and effective diet, at least for man."

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[1] Crowe, S. J., Watkins, S. S., and Rothholz, Alma S.: Relation of Tonsillar and Nasopharyngeal Infections to General Systemic Disorders, Bull. Johns Hopkins Hosp., 1917, **28**, 1.

[2] Thompson and Hewett: The Fate of Micro-Organisms in the Inspired Air, Lancet, London, 1896, **1**, 86.

[3] Bloch, E.: Physiological Investigations of Nasal Respiration, Arch. Otol., 1888, **17**, 2[illegible]9; 1889, **18**, 1.

[1] Hull, T. G., and Rettger, Leo: The Influence of Milk and Carbohydrate Feeding on the Character of the Intestinal Flora, IV, Diet Versus Bacterial Implantation, Jour. Bacteriol., 1917, **2**, 47.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Addition to Medical School.—Work on the operating amphitheater for the School of Medicine of the University of Alabama, Mobile, began March 1. The money required for the building, $10,000, has been appropriated by the city of Mobile.

State Society Meeting.—The annual meeting of the Medical Association of the State of Alabama will be held in Montgomery, April 17 to 20. Dr. William J. Mayo, Rochester, Minn., is on the program for an address on "The Importance of Septic Infection in the Three Great Plagues."

Officers Installed.—At the annual meeting of the Medical Society of Mobile County the following officers were installed: president, Dr. James J. Peterson; vice president, Dr. Lee W. Roe; secretary, Dr. Willis W. Scales (reelected); treasurer and county physician, Dr. Eugene Thames, and county health officer, Dr. Paul J. M. Acker (reelected), all of Mobile.

Truce in Medical Society.—The Jefferson County Medical Society, at its meeting, February 5, adopted resolutions affirming its confidence in the committee of health of the society, and agreeing that there should be no further discussion in the society about existing public health matters until the supreme court has handed down its decision on the question at issue.

Personal.—Dr. John M. Lowrey has been appointed health officer of Birmingham.——Dr. George A. Hogan, Birmingham, has been appointed coroner of Jefferson County, to succeed Dr. Clarence C. Wiley, Birmingham, resigned.——Under a ruling of Judge Sharp, February 24, Dr. Cecil Gaston, who had been appointed by the city commissioner as health officer, was ousted, the ruling being that the health officer must be appointed by the county board of health.——Dr. Samuel W. Welch, Talladega, has succeeded Dr. William H. Sanders, Montgomery, as state health officer.

CALIFORNIA

Physicians' Building Remodeled.—Plans are being made for remodeling the Physicians' Building, Sacramento, at a cost of from $75,000 to $100,000.

Personal.—Dr. Rose C. McFall, Los Angeles, formerly of Chicago, was seriously injured by being run down by an automobile, February 24.

"Healer" Dies.—August Schroeder, self-styled "divine healer," whose trial for fraudulent use of the mails was interrupted by his illness, died, February 28, at the Los Angeles County Hospital, from pneumonia.

ILLINOIS

Appropriations for Medical School.—A bill introduced into the house by Representative William H. H. Miller, Champaign, and in the senate by Hon. Henry N. Dunlap, proposes expenditures for the medical department of the University of Illinois amounting to $2,000,000 during the next decade.

Typhoid Reported.—Dr. Edward S. Godfrey of the state board of health is said to have discovered that North Chicago sewage is emptied into Lake Michigan within 2,400 feet of the intake pipe supplying water to the town, in which twenty cases of typhoid fever were reported earlier in the week.——March 9, thirteen cases of typhoid fever were reported in Waukegan.

Clinic on Infantile Paralysis.—March 24, Dr. Clarence W. East will give a clinic on infantile paralysis in Kankakee. In the morning and afternoon he will examine patients convalescing from the disease, and in the evening he will give an illustrated talk in the assembly hall of the high school on "Infantile Paralysis." The work is being undertaken with the cooperation of the Kankakee County Medical Society.

Personal.—Dr. C. St. Clair Drake, Springfield, secretary of the state board of health, was one of the speakers at the ninth annual meeting of the American Water Works Association at Urbana, March 13. March 14, Dr. Drake spoke before the Chicago Women's Club on "Midwifery and Infant Blindness."——Dr. Albert R. DeCosta, Bloomington, has been appointed physician to McLane County.——Dr. Eugene Waul, Jr., Edwardsville, was slightly injured when the gasoline tank of his automobile exploded, March 5.

Chicago

Infant Welfare.—The Infant Welfare Society is endeavoring to raise $100,000 for fifty new infant welfare stations. Drs. Sadie Bay Adair and Walter H. Hoffman have charge of the movement.

Bond Issue for Contagious Disease Hospital.—An active campaign is being made to obtain a bond issue aggregating $2,200,000 for health purposes, of which $1,000,000 is for incinerators and other equipment for the disposal of wastes, and $750,000 for the erection of two additional wings at the Contagious Disease Hospital.

Army Lectures to Be Given.—Major William N. Bispham, M. C., U. S. Army, delivered the first lecture in a course on military hygiene and sanitation at Northwestern University Medical School, March 19, at Rush Medical College, March 23, and at Loyola University, March 24. Two lectures each week are to be delivered at each of the medical schools of the city.

Eight-Hour Day for Nurses Impracticable.—The council of the Chicago Medical Society on March 13 adopted a resolution stating that a shift for nurses to eight hours "would be to disrupt the efficiency of their work," and stating furthermore that nursing should not be governed by union labor regulations but "is a special business and cannot be dictated to by laws other than those giving them the right to act as nurses."

Blame for Typhoid Fixed.—The commission appointed by the city council health committee to ascertain whether the typhoid fever epidemic following the storm of January, 1916, was due to inefficiency of the pumping station of the sanitary district has reported that both the city government and the sanitary district are at fault, on account of inadequate equipment. Immediate repairs to the pumping station of the sanitary district, the overhauling of the Thirty-Ninth Street plant and an auxiliary gravity sewerage system are recommended. The commission further urges that passenger steamers should not be permitted to dump refuse in the lake.

KANSAS

Personal.—Drs. George R. Dean, McPherson, and Henry A. Dykes, Lebanon, have been appointed members of the State Board of Registration and Examination.

LOUISIANA

Physicians Organized.—At a meeting held at Lake Charles, February 12, the Seventh District Medical Association was organized. Dr. Thomas H. Watkins was elected president and Dr. George G. Kreeger, secretary-treasurer, both of Lake Charles.

Health Survey of New Orleans.—To determine the number of cases of illness in the city within a given time and the nature of the care of those who are ill, the Metropolitan Life Insurance Company has offered to make a health survey of New Orleans, at the expense of the company, and with the cooperation of the city board of health. The survey began March 16, when the subject of malaria was taken up.

MARYLAND

Building for Doctors.—A medical building will be erected in the near future at Saratoga and Charles Streets. It will be ten stories high, the upper floors exclusively for physicians and dentists, with special equipment and fittings for physicians' offices.

Meetings.—A joint meeting of the Baltimore City Medical Society with the Medical Society of the District of Columbia was held in Osler Hall, Baltimore, March 16, when the subject of medical preparedness was discussed. The principal speakers were: Surg.-Gen. William C. Gorgas, U. S. Army, whose subject was "Modern Methods of Army Sanitation"; Col. Louis A. LaGarde, M. C., U. S. Army (retired), who spoke on "The Surgeon and Medico-Military Preparedness," and Major Robert E. Noble, M. C., U. S. Army, the title of whose paper was "The Medical Needs of the Service."

Personal.—Major J. Harry Ullrich, commander of Field Hospital No. 1, N. G. Md., has been named as president of a board of medical examiners for the Maryland Naval Militia by Secretary Daniels. This board will be a permanent organization, and is a part of the preparedness program which is being worked out by the federal government. The other members of the board are Passed Assistant Surgeon Flynn and Acting Assistant Surgeon William G. Townsend, U. S. Navy.——Pending the action of the board of managers, Dr. J. J. Roberts has been made acting general superintendent of the Maryland General Hospital, in place of Dr. Elmer Newcomer, deceased.

MASSACHUSETTS

County Sanatorium.—The county commissioners of Plymouth County have decided to establish a tuberculosis hospital for Plymouth County at South Hanson where a site of 33 acres of land is to be purchased. The hospital will cost $75,000.

Amherst Alumni Donate Ambulance.—The alumni of Amherst College have contributed the necessary funds to purchase an ambulance, which has already started for France and will be used in the French service. It is expected that an Amherst graduate will be secured for driver of the ambulance.

Personal.—Dr. Philip W. Place of the Boston City Hospital has been appointed resident physician at the Contagious Group of the Cincinnati General Hospital.——Dr. Howard W. Beal, Worcester, who was on duty for several months in the early part of the European War at the American Women's Hospital, at Paignton, North Devon, England, has declined an offer to take charge of the American Ambulance Hospital at Juilly, France.

Cutter Lectures.—Dr. Martin H. Fischer, professor of physiology in the University of Cincinnati, and Dr. Ludvig Hektoen, head of the department of pathology of the University of Chicago, have been elected Cutter lecturers on medicine and hygiene at Harvard University for the academic year of 1916-1917. Dr. Fischer lectured on "The General Physiology and Pathology of Water Absorption by Protoplasm," March 20, and on "Fats and Fatty Degenerations," March 21.

Harvard Medical Honors.—The annual meeting for the awarding of medical honors at Harvard Medical School was held in the Administration Building, February 26. President Lowell presided. The principal address was delivered by Prof. William S. Thayer of Johns Hopkins Medical School and Dean Bradford presented diplomas to the John Harvard Fellows and other scholars of the first group, and elections to the Alpha Omega Alpha Society were announced.

The Study of Ptomain Poisoning.—The National Canners' Association, March 12, offered $20,000 annually for three years to be used in the investigation of food poisoning. This appropriation has been accepted by Harvard University and researches into the subject of ptomain poisoning with a special reference to canned goods will be made by the Harvard Medical School under the direction of Dr. Milton J. Rosenau, Boston.

Surgical Unit Sails for Europe.—A Harvard surgical unit headed by Dr. Hugh Cabot sailed for Europe on the *Andenia,* February 21, for a British base hospital in France. The medical personnel includes: Drs. Thomas J. Blackshear, Jr., Dublin, Ga.; E. Stanley Bridges, St. John, N. B.; Eldon D. Busby, Ottawa, Ont.; P. Pineo Chase, Hyannis, Mass.; Ernest G. Crabtree, Brookline, Mass.; Thomas D. Cunningham, Brookline, Mass.; Ezra S. Fish, New York; Francis B. Grinnell, Charles River Village, Mass.; Jefferson W. Hawthorne, North Cambridge, Mass.; Don J. Knowlton, Greenwich, Conn.; Fabyan Packard, Allston, Mass.; Albert O. Raymond, Brockton, Mass.; George C. Shattuck, Boston; Oliver H. Stansfield, Worcester, Mass.; William P. Sweeny, New York; Leonard M. Van Stone, Brookline, Mass.; George Watt, East Providence, R. I., and the Worcester City Hospital; Edward S. Welles, Boston; Dr. David E. Wheeler, New York; Harry W. Woodward, Boston, and John S. Young, St. Louis.

NEBRASKA

The Vaccination Question.—The Douglas County Medical Society, March 13, unanimously adopted a resolution upholding the vaccination policy of Health Commissioner Ralph W. Connell.

Hospital Wing to Be Built.—A contract has been awarded for the building of the northeast wing of the Methodist Hospital, Omaha, which will be four stories in height and 40 by 90 feet.

Board of Secretaries to Be Done Away With.—A bill introduced by Senator Fox, reorganizing the state board of health on a broader basis, and doing away with the present board of secretaries except in a strictly advisory capacity, passed the senate, March 6, by unanimous vote.

NEW YORK

Health Clinic Opened.—A health clinic conducted by Miss Pearl N. Hyer, public health nurse of Little Falls, was opened in that city, March 8. Dr. Augustus P. Santry was in charge of the clinic.

Personal.—Dr. John L. Heffron, dean of the Syracuse College of Medicine, who went to Florida on account of his health several weeks ago, is reported to be greatly improved and expects to return to Syracuse next month.

Men Available for Military Service.—Acting Commissioner of Health Dr. Linsly R. Williams, New York, in response to inquiry for Adjutant-General Stotesbury, states that there are about 570,000 men fit for active military service in New York, and about an equal number fit for home defense service. These figures are based on the estimated population of New York for 1917 as being 10,490,680.

Oppose State Institutions in Watershed.—The Merchants' Association has protested before the Senate Finance Committee against retaining the Mohansic State Hospital and the Training School for Boys within the Croton watershed. The Wagner-Bloch bill provides that no state institution shall hereafter be located within the watershed and that the hospital and training school projects be abandoned.——A bill creating an emergency police force to guard the Croton and Ashokan watersheds was signed by Governor Whitman, March 16. The new force will relieve the National Guard contingents at present patrolling the water supply property of New York in counties not within the city.

Health Insurance Commission to Be Appointed.—A bill introduced into the legislature, March 12, provides for a commission to investigate health insurance, the inquiry to cover sickness and accidents of employees and their families not reached by workmen's compensation; the causes; the loss to individuals and to the public; the adequacy of present treatment and of benefits provided through commercial insurance, fraternal orders, etc.; occupational disease, and existing methods of prevention. The commission is to consist of two senators appointed by the president of the senate, three assemblymen appointed by the speaker, and four other persons not legislators appointed by the governor, one of the number to be a representative of wage earners, one of employers, one a physician, one a lawyer, one an economist, and one a woman.

New York City

Class Reunion.—The class of 1892 of the Medical Department of the University of the City of New York will hold its twenty-fifth reunion and banquet at the Hotel McAlpin on the evening of April 11. The committee in charge includes Drs. John F. Hagerty, Newark, N. J.; J. Emmet Tower, Manhattan, and Robert E. Coughlin, Brooklyn.

Unwholesome Food Condemned and Destroyed.—During the week ending March 10, inspectors of the terminal squad of the Bureau of Food and Drugs condemned 314,258 pounds of assorted foodstuffs, consisting of poultry and large quantities of fruits and vegetables. Members of the warehouse squad of inspectors during the same week condemned 18,318 pounds of foodstuffs. Inspectors of the factory squad condemned 14,400 pounds of cocoa damaged by fire.

American Posture League.—March 10 this organization held a meeting at the home of Mrs. James Speyer for the purpose of presenting constructive work in public, personal, school and industrial hygiene which has been developed by the American Posture League. The audience consisted of an invited company, including officials of local medical societies, representatives of state and city boards of health and education, and others especially interested in welfare and efficiency work. Among the speakers were Drs. Henry Ling Taylor, Linnaeus E. LaFetra, Eliza M. Mosher, James Porter Fiske and Stuart H. Rowe, Ph.D.

New Hospital Buildings.—Beth Israel Hospital has recently acquired title to property at 17 Livingston Place, next to a frontage of 150 feet, which it already owned. The trustees announce that a new hospital will be erected on this site at a cost of $1,000,000.——The Bronx Hospital on Crotona Park has filed plans with the building department for a new three-story building which will be begun immediately.——St. Vincent's Hospital has secured control of the entire block on the east side of Seventh Avenue, between Eleventh and Twelfth streets. The main hospital was built around four small houses on Seventh Avenue, all of which have now been acquired.

Free Course in Contagious Diseases.—The department of health announces that its courses in contagious diseases given during the past two years have been so successful that a similar series of lessons will be given this spring. Each course consists of eight lessons, six on clinical bedside instruction and two on laboratory work. Only practicing physicians will be admitted. No fees will be charged, but physicians entering the course are expected to attend regularly. The courses will be given on Tuesdays, Wednesdays, Thursdays and Fridays, at 2 p. m., at the Willard Parker Hospital. The first lecture will be given on March 27 by Dr. Henry W. Berg. Physicians desiring to attend the course may register with the Bureau of Public Health Education, Department of Health, 139 Centre Street.

NORTH CAROLINA

Personal.—Dr. Daniel E. Sevier, Asheville, has been reelected health officer for Buncombe County.——Dr. James A. Speight, Nashville, has succeeded Dr. James C. Braswell as full time health officer of Nash County.

Hospital for Negroes.—A 4-acre lot has been provided and plans are being made for the erection of a greater Lincoln Hospital at Durham for the exclusive use of negroes. Dr. Aaron M. Moore, a well known colored physician of Durham, has associated with him a number of leading citizens of both races, which assures the success of the plan.

PENNSYLVANIA

Imprisonment for Abusing Hospital Staff.—William Kelley is said to have been sentenced to thirty days' imprisonment in the county jail for abusing a physician and an attendant, at St. Vincent's Hospital, Erie, where he was a charity patient.

Enlarge Sanatorium Accommodations.—The plan of Dr. Samuel G. Dixon, state health commissioner, of building twenty cottages on each side of the present sanatorium building at Hamburg, at a cost of $28,000, was tentatively approved by the House of Appropriations Committee, March 6. This will increase the capacity of the institution to 160.

Postgraduate Work.—The committee on medical education of the state society and the Board of Medical Licensure have advised hospitals to become centers for medical postgraduate work. The Abington Hospital, Old York Road, has begun a monthly series of clinics for the benefit of the Bucks County Medical Society and other local physicians.

Meningitis in Fayette City.—The discovery of six cases of cerebrospinal meningitis in Fayette City between March 2 and 7 has resulted in the taking of precautionary measures by the board of health to prevent the spread of the epidemic. The schools were dismissed for an indefinite period on March 7, and the school buildings have been fumigated. A clean-up campaign has been inaugurated in the borough.

Philadelphia

War Medical Corps Unit.—Twenty-two university medical school graduates have enlisted in a University of Pennsylvania Medical Corps unit under the leadership of Dr. Edward Martin. Fifty nurses, numerous orderlies, attendants, Roentgen-ray men, dietitians and laboratory experts have also added their names to the list. Sufficient equipment is on hand to enable the hospital corps to take the field immediately.

Society Prepares to Combat Poliomyelitis.—In view of a recurrence of infantile paralysis in the coming summer, the Visiting Nurses' Society has sent one of its best nurses to Boston to take a course under Dr. Robert W. Lovett at the Children's Hospital. The expense has been assumed by private means. The course, which covers six weeks, consists of an extensive study of anatomy, muscle training and massage, and it is hoped that the nurses will not only be able to take charge of cases but be able to teach others.

Medical Institutions.—Dr. James M. Anders, a member of the board of trustees of the Medico-Chirurgical Hospital and College, recently announced that its buildings will be abandoned about June 1, so that all structures along the line of the Parkway may be razed by June 15. The college will abandon all its buildings, even the new maternity hospital on Eighteenth Street, that will not fall within the lines of the Parkway. Buildings on the campus of the University of Pennsylvania are now being erected which will contain the three institutions in the merger, viz.: the Polyclinic Hospital, the University of Pennsylvania Medical School and the Medico-Chirurgical Hospital and College.

Personal.—Dr. C. Lincoln Furbush, who went to Berlin several months ago as one of the five medical inspectors requested by England, Roumania and Serbia, to investigate the treatment accorded their captured soldiers in German prisons, returned with Ambassador Gerard's party, March 15.——Dr. Daniel J. McCarthy delivered a lecture on the "Larger Problems of Social Service in European Countries" at Houston Hall, University of Pennsylvania, March 17.——Dr. Judson Daland will deliver an address on "Focal Infection as a Cause of Constitutional Disease" before the Academy of Medicine, Toronto, April 3.——Dr. Albert F. Schreiber, chief meat and cattle inspector to the bureau of health, is under treatment at St. Mary's Hospital for gangrene of the right foot, which may necessitate its amputation.

TENNESSEE

New Hospital for Memphis.—One hundred and seventy-five thousand dollars has been subscribed for the new Methodist Hospital.

Trachoma Hospital Opened.—A hospital has been opened at Tazewell, under the supervision of the United States Public Health Service, for the treatment of trachoma.

Personal.—Dr. William J. Core, Nashville, surgeon of the Cunard steamer *Folia*, was one of the survivors when that ship was sunk by a submarine off Waterford, Ireland, March 10.——Dr. Joseph L. Mackey, Charleston, was thrown from his automobile recently, and received serious injuries.

State Society Meeting.—The Tennessee State Medical Association will hold its eighty-fifth annual meeting, April 3 to 5, under the presidency of Dr. Charles N. Cowden, Nashville. Prominent features of the program are addresses by Dr. Edgar G. Ballenger, Atlanta, Ga., on "Certain Affections of the Bladder and Syphilis," illustrated by moving pictures; by Dr. James S. McLester, Birmingham, Ala., on "Syphilis and Internal Medicine," and by Dr. Frederick R. Green, Chicago, on "State Regulation of the Practice of Medicine as an Educational Problem."

TEXAS

State Association Meeting.—The annual meeting of the State Medical Association of Texas will be held in Dallas, May 8 to 10. Dr. Samuel E. Milliken is chairman of the general committee of arrangements.

Dinner to Dr. Thompson.—About forty physicians of San Antonio gave a luncheon at the Travis Club, March 8, in honor of Dr. Samuel E. Thompson, who recently resigned his position as director of the State Tuberculosis Sanatorium, Carlsbad, to take charge of the Mountain View Sanatorium, Kerrville.

Personal.—Dr. Thomas B. Bass has been reelected superintendent of the State Epileptic Colony, Abilene.——Dr. John Preston has been reelected superintendent of the State Hospital, Austin.——Dr. John W. Bradfield has been elected superintendent of the State Colony for the Feebleminded, Austin, to fill the vacancy caused by the resignation of Dr. Lewis B. Bibb.

Nostrum Bill Introduced.—February 15, Senator Strickland introduced a bill in the senate which makes it unlawful to sell, offer for sale, give away or dispose of compounds or preparations sold or intended to be used as a specific remedy or treatment for any bodily disease or illness containing more than 2 per cent. of common ethyl or alcohol, except on the written prescription of a licensed physician or when such sale is made by a person having a retail liquor license.

WISCONSIN

Personal.—Dr. James R. Barnett, Jr., Neenah, has been appointed supreme medical examiner of the Equitable Fraternal Union, succeeding his father, the late Dr. James R. Barnett.

Hospital News.—The addition to St. Vincent's Hospital, Green Bay, erected at a cost of $75,000, was opened to receive patients, March 8.——The new St. Joseph's Hospital, Portage, will be ready for occupancy this month.

Medical Reserve Corps Organized.—At a meeting recently held in Milwaukee, the Milwaukee County Division of the Medical Reserve Corps, U. S. Army, was organized and Lieut. George V. I. Brown, Milwaukee, was elected president.

Society Revives.—The Oneida-Forest-Vilas County Medical Society, which has been inactive for about six years, has been reorganized, and elected Dr. William C. Bennett, Rhinelander, as president and Dr. Clarence A. Richards, Rhinelander, secretary.

CANADA

Hospital News.—The finest home for convalescent soldiers in all Canada will be the old Loyola College, Montreal. Here will be centered the headquarters of the Canadian Hospital Commission. The alterations have been completed.——The Canadian Military Hospitals Commission will soon establish another hospital, 4 miles from Montreal, with accommodation for about 600 returned soldiers. It will be situated on 80 acres of ground and will be constructed of huts.

Personal.—The following Canadian physicians have recently been decorated with the military cross: Capts. A. A. Dinant, Frederick W. Lees, Eburne, B. C.; George G. Greer, Peterborough, Ont.; R. M. Luton, J. E. McAskile, William F. Nicholson, Hamilton, Ont.; Paul Poisson, Tecumseh, Ont.; W. D. Rorison and L. R. Meech; Lieuts. William N. Gilmour, Brockville, Ont., and Charles S. Wynne, Toronto, Ont.——Dr. Norman H. Sutton, Peterborough, Ont., is commanding officer in Hill House Military Hospital, Kent County, England.——Captain Tague, Belleville, Ont., has been appointed medical officer of the 235th Battalion.——Capt. J. N. MacRae, Galt, Ont., is now acting adjutant of the Central Military Hospital, Shorncliffe, England.——Col. Samuel W. Prowse, M.D., Winnipeg, is commanding officer of the Princess Patricia Convalescent Hospital recently opened at Shorncliffe, England.——Dr. Charles Sheard, Toronto, has returned from an extended trip through the southern states.——Dr. Giles G. Membery, Adolphustown, Ont., formerly surgeon on H. M. S. *Cochrane*, has received promotion and is now fleet surgeon of the Tenth Cruiser Squadron.——Dr. Ludwig S. MacKid, Calgary, Alta., is now a major in the Canadian Army Medical Corps, on service in France.——Militia orders issued from Ottawa, March 14, announce the appointment of Lieut.-Col. George A. S. Ryerson, Toronto, to be honorary surgeon-general, succeeding to the title held by the late Hon. Sir Frederick W. Borden, M.D.——Col. Perry G. Goldsmith, Toronto, has been appointed president of the Officer's Standing Medical Board in England.——Col. George S. Rennie, Hamilton, Ont., has assumed the entire duties of assistant medical director at Shorncliffe.——Major Donald, Vancouver, B. C., has been appointed commandant of the Canadian hospital ship, with Captain McDiarmid as adjutant.——Lieut.-Col. Frank W. E. Wilson, Niagara Falls, Ont., and Lieut.-Col. D. W. McPherson, Toronto, both of whom have been in England for many months, have now gone to France.

GENERAL

Army Notes.—Major Jesse R. Harris, Tacoma Park, D. C., M. C., U. S. Army, was retired from active service, March 2, on account of disability incident to the service.

Health Week for Negroes.—The National Negro Business League has set apart the week of April 22 to 28 as the National Negro Health Week, and has agreed to cooperate with the National Clean-up and Paint-up Campaign Bureau in an endeavor to better the living conditions of negroes throughout the United States.

What the Rockefeller Foundation is Doing.—Dr. George E. Vincent, president-elect of the Rockefeller Foundation, in an address before the Industrial Club of Chicago recently, stated that the Rockefeller Institute for Medical Research had a plant valued at $15,000,000 and has as its object the intensive study of diseases. On the conclusion of the war, the foundation will establish schools and hospitals in China to cost at least $1,000,000.

New Tuberculosis Journal.—The National Association for the Study and Prevention of Tuberculosis announces the appearance of the *American Review of Tuberculosis*, a monthly technical journal. Dr. Allen K. Krause, Baltimore, is managing editor, and the editorial policy is determined by a staff of seven physicians consisting of Dr. Edward R. Baldwin, Saranac Lake, N. Y., editor-in-chief, and Drs. Lawrason Brown, Saranac Lake, N. Y., Henry R. M. Landis, and Paul A. Lewis, Philadelphia, Milton J. Rosenau, Boston, Henry Sewall, Denver, and Borden S. Veeder, St. Louis.

Grayson's Appointment Confirmed.—The nomination of P. A. Surg. Cary T. Grayson to be medical director with the rank of rear admiral has been confirmed by the senate. This gives Dr. Grayson the highest rank in the Medical Corps of the Navy, a rank at present held by only one other officer, Surg.-Gen. William C. Braisted. Dr. Grayson was born in Virginia, Oct. 11, 1878, and received his medical education at the University of the South, Sewanee, Tenn., from which he was graduated in 1903. He immediately entered the navy as acting assistant surgeon, receiving his grade of assistant surgeon, June 28, 1904. He was promoted to passed assistant surgeon three years later, and, at the time of his advancement to rear admiral, had had a little more than three years' sea service and seven years' shore or other duty. He was on duty as personal physician to President Taft, and since President Wilson's accession has continued in the same position to President Wilson. This promotion carries with it a corresponding increase of pay. The pay of passed assistant surgeon is $2,200 at sea, or $2,000 on shore duty; that of rear admiral $8,000.

Occupational Therapy.—At the conference held at Clifton Springs, N. Y., March 15-17, addresses were made by Dr. W. R. Dunton, Jr., of the Sheppard and Enoch Pratt Hospital on the "History of Occupational Therapy"; by Mr. George E. Barton on the "Therapeutic Value of Drawing and Modeling, and Preparation of Patients for Inoculation of 'Bacillus of Work'"; by Mr. Kidner on the "Difficulties and Results of Reeducation of the Crippled Soldier in Canada"; by Mrs. Slagle on the "Work of the Occupational Experiment Station in Chicago"; by Miss Johnson on the "Occupational Work on Blackwell's Island," and by F. B. and L. M. Gilbreth on a "New Occupation for the Crippled Soldier—The Conservation of the World's Teeth," illustrated by photographs of a one-eyed, one-armed, partially deaf, legless man engaged in dental nursing. The conference resulted in the formation of a National Society for the Promotion of Occupational Therapy, with the following officers: president and chairman of committee on research and efficiency, George Edward Barton, Clifton Springs, N. Y.; vice president and chairman of committee on installations and advice, Mrs. Eleanor Clarke Slagle, Chicago; secretary, Miss Isabel G. Newton, Consolation House, Clifton Springs, N. Y., and treasurer and chairman of committee on finance, publicity and publications, Dr. W. R. Dunton, Jr., Towson, Md.

FOREIGN

International Convalescents Interned at Lago di Garda.—Arrangements are now under way to have the health resorts on the Lago di Garda, Italy, utilized for the convalescent wounded from the entente allied nations.

The Tripier Legacies.—Prof. R. Tripier, formerly of the University of Lyons, has bequeathed to the university the sum of $40,000, the income of which is to be used to encourage works on operative medicine and pathologic anatomy. He also left a similar sum to the city of Lyons for the purchase every fifth year of some work of art.

Financial Aid for Parturients.—A recent French decree grants a daily allowance to women of French nationality during the period just preceding and following a childbirth, regardless of whether the woman is a habitual wage-earner or not. The same allowance is also made to refugees from the invaded regions, under the same conditions. The amount of the allowance is that of the rent paid.

Deaths in the Profession Abroad.—**J. Lefour,** professor of obstetrics at the University of Bordeaux, aged 66.——**E. Huet,** chief of the service of electrotherapy at the Salpêtrière, Paris, during and since Charcot's day, president of the Société de Neurologie.——**G. Paladino,** professor of histology and general physiology at the University of Naples, senator of the realm, president of various scientific societies and member of numerous others in various countries, aged 75. His obituary notice in the *Riforma Medica* mentions among the other honors conferred on him that he held an honorary degree from Rush Medical College of Chicago.

The New "Archives Médicales Belges."—The surgeon-general of the Belgian army has taken steps to insure the publication of a medical journal in Belgium, none of the former medical journals having been issued since the invasion of Belgium. The first number has now reached us. It assumes the name of an old Belgian medical journal, the *Archives médicales belges*, so that the new issue appears as No. 1 of Volume 70. The editorial staff includes Depage, Willems and fourteen others. The more active members of the staff are M. Stassen and J. Voncken, who are connected with the Hôpital militaire Cabour, at Adinkerke, in the still uninvaded portion of Belgium. The publishers are J. B. Baillière, 19 rue Hautefeuille, Paris, but the actual work of printing is done at the Institut Militaire Belge de Rééducation Professionelle pour Mutilés de la guerre, at Port-Villez, Vernon, Eure. All the profits of the journal are to be devoted to this institution for the occupational training of crippled soldiers. It is planned to continue the *Archives* monthly, but the editors admit that circumstances may prevent a regular monthly issue, as no one knows what the morrow may bring forth. All exchanges and communications are to be sent to the Comité de Rédaction, Inspection Générale du Service de Santé de l'armée belge en campagne. The first number contains, besides several original articles, an ample abstract department and obituary notices of ten Belgian physicians and ten medical students who have been killed during the war. The Surgeon-General's Catalogue lists three pages of medical or pharmaceutical journals published in Belgium, but only two or three dozen were currently published at the beginning of 1914. This list included the *Gazette médicale de Liége*, the *Presse médicale belge*, the *Journal médical de Bruxelles* besides three international archives for surgery, physiology and pharmacodynamics, and a number of bulletins recording the transactions of various scientific organizations. The *Archives médicales belges* since its foundation seventy years ago has always been the organ of the medical department of the army.

PARIS LETTER

Paris, Feb. 22, 1917.

The War

PICRIC ACID JAUNDICE AND TRUE ICTERUS

Some authors believe that the jaundice induced by the ingestion of picric acid is characterized by the absence of bile and bile pigments from the urine, while others maintain that picric acid jaundice is a true icterus. Malmejac, in a recent communication to the Réunion médicale de la IV-e Armée, throws new light on this subject. He studied 981 cases of true jaundice and picric acid jaundice, making daily examinations of the urine, and found that bile and bile pigments were always present in large quantities in cases of true icterus, while in cases of picric acid jaundice they were excreted in much smaller quantities and more slowly. Sometimes these elements were found only in traces, but they always gave a distinct reaction. In only five cases was Malmejac able to obtain traces of bile pigment on the first day. He is convinced that there is some relation between the size of the dose of picric acid ingested, the physical condition of the individual and the excretion of pigment. The bile elements appear rather slowly. Is it not possible, then, that if the pigmentation of the skin is not due to the picric acid, the pigment or at least some picric acid derivative would be found in the blood? Malmejac has shown that the skin eliminates these two acids, which would explain the skin pigmentation in the great majority of these cases of picric acid jaundice. Furthermore, picric acid imparts to the urine a currant red color. Malmejac has concluded that, in the beginning, picric acid jaundice and its complications comprise a case of slight intoxication of the hepatic cells. The jaundice provoked by the ingestion of the picric acid is therefore a jaundice of a definite type, which differentiates it from ordinary icterus.

Dr. Boidin stated that various interpretations of Malmejac's findings could be made. Some authors have stated that picric acid jaundice is a false icterus in which the yellow color of the skin and mucous membranes plays no part, so that if one can find biliary pigments in the urine one can eliminate at the start the possibility of a picric acid intoxication. More recently Brulé, Javillier and Backeroot have pronounced picric acid icterus a true icterus; that it is identical with all forms of benign icterus, either infectious or toxic. Like Malmejac, Boidin thinks that all these opinions are too positive, and that the picric acid jaundice is always due to the coloring matter in the acid, on which is often superimposed a true biliary icterus. If one wishes to convince himself of this he need but follow the course of the picric acid in the organism. Ordinarily, picric acid, when ingested, is rejected either by emesis or by diarrhea, which are frequent symptoms at the start. Any portion of the acid that is absorbed must first pass the liver barrier, thereby injuring this organ so that the bile pigments can pass into the blood and urine; but before such an icterus can occur or make its appearance, the picric acid has already been diffused throughout the organism. The fact that it is found in the blood serum and even in the cerebrospinal fluid, as was shown by Malmejac, proves that picric acid possesses extreme diffusibility. It is eliminated by the skin and by the urine, imparting to each a special yellow color. Admitting, then, that the product is diffusible, that it possesses tinctorial qualities, why should it not be capable of coloring the skin and mucous membranes? To the picric acid jaundice may be added a true icterus, but it is secondary and unimportant. Clinically, the nature of this picric acid jaundice has been established, but the chemist must be the sole judge of the matter.

Dr. Merklen stated that the term "picric acid icterus" is incorrect because it implies that the ingestion of picric acid is followed by an essential impregnation of the tissues with bile salts; but no convincing proof has been reported by the authors who claim that the yellow discoloration of the skin is of hepatic origin. One can hardly conceive of an icterus that fails to present all the clinical signs of bile retention: rapid pulse, pruritis, etc. Malmejac, in his convincing communication, throws a new light on the late appearance in the urine of these pigments and biliary acids, the urobilin, etc. At the outset the yellow tint of the skin is unique, being due to the diffusion of the picric products in the serum. Picric acid icterus, reduced to a reality, is a tinctorial phenomenon, but picric acid is a liver poison. Taken in sufficient doses it will in time color the skin and leave its mark on the liver cells. The response of these cells to the agents that come in contact with them, picric acid and others, consists in the production of urobilin, biliary acids, and even a small quantity of pigments; these are the bad consequences, even as albuminuria is the common result of kidney disease. Picric acid intoxication corresponds rather to an acute hepatitis. If the skin discoloration is due to a true hepatitis, the urine must contain the liver products mentioned. In all the cirrhoses the urinary findings are definite, and accompany the icterus. Without doubt, after a time, pigment retention may intervene, although this is difficult to determine, if one must rely only on the yellow tinting of the skin; but it goes to show that the biliary impregnation is merely an episode in the picric acid intoxication.

THE SUGAR CARD AND THE SPAS

M. Peyronnet, senator of the department of the Allier (in which lies Vichy), has directed the attention of M. Herriot, minister of the food supply, to the situation created at the spas and the health resorts by the introduction of the sugar card. The senator pointed out to the minister the interest that would attach to a declaration of the government which would not assure persons frequenting these spas and health resorts of a sufficient amount of sugar, such as they would need during their stay. The minister replied that it was the disposition of the authorities to continue to allow a sufficient amount of sugar to these persons. The sugar will be distributed to the hotels, restaurants and boarding houses on the basis of the consumption during the corresponding month for the two previous years, and for commercial and industrial use, according to the demands of the season. All persons frequenting the spas who are not taking their meals at hotels, restaurants or boarding houses will be given a temporary card for the duration of their stay, whether this be more or less than a month. As for the sick, it has been decided that they shall be given a supplementary quantity of sugar on the presentation of a medical certificate.

FIGHT OF MILITARY AUTHORITIES AGAINST ALCOHOLISM

The commanding general of the armies has interdicted, in the zones determined by the general commander-in-chief, the circulation and sale of alcohol and spirituous liquors. To make this mandate sufficiently effective, penalties were heretofore lacking. Therefore a law has been passed sanctioning the prohibition of the sale and distribution of alcohol as decided on by the military authorities. Infractions of the law are punishable the same as in laws made by the administrative authorities. The same penalties will apply, in case of infraction, to the arrangements made to prevent the giving of alcohol and spirituous liquors to the soldiers.

To prevent the danger of alcoholism among foreign-born natives, the military colonial workers on service or passing through the Marseilles region (Senegals, Arabs, Kabyles, Indo-Chinese, etc.), the commanding general of that region has decided that the sale of wine, and in general of all alcoholics, even those of a test less than 23 degrees, was interdicted for men coming under these categories. A very active surveillance will be exercised over the retailers of alcoholics. In cases of infraction they will not be allowed to admit troopers and colonial workers.

Compulsory Notification of Acute Anterior Poliomyelitis

By a recent decree, acute anterior poliomyelitis has been added to the list of transmissible diseases for which notification and disinfection are compulsory. This list includes at present: (1) typhoid, (2) typhus, (3) variola and varioloid, (4) scarlet fever, (5) measles, (6) diphtheria, (7) military fever, (8) cholera and choleriform diseases, (9) ague, (10) yellow fever, (11) dysentery, (12) puerperal infection and ophthalmia of the new-born (unless the confinement is not made public), (13) epidemic cerebrospinal meningitis, and (14) acute anterior poliomyelitis. The same decree modifies the method of designation of maladies of which notification may be made by the substitution of letters for the numbers heretofore given them. These maladies are (A) pulmonary tuberculosis, (B) whooping cough, (C) grip, (D) pneumonia and bronchopneumonia, (E) erysipelas, (F) mumps, (G) leprosy, (H) favus, and (I) purulent conjunctivitis and trachoma.

Books for the Blind

The city of Paris is informing the public, by means of posters, that the Valentin Haüy Association for the Welfare of the Blind has deposited in six municipal libraries a circulating library composed of several books printed in Braille type, to be placed at the disposition of the blind readers of the department of the Seine. Blind readers will be allowed to take these books home under the same conditions and regulations as apply to the ordinary books in municipal libraries. These special books will be renewed periodically by the Valentin Haüy Association.

BERLIN LETTER

(Received, March 12, 1917)

Berlin, Jan. 5, 1917.

Personal

Professor von Grützner has resigned as director of the Physiologic Institute because of advanced age.

Professor Ibrahim of Munich has accepted the chair of pediatrics at Jena.

Privy Councilor Professor Schüle, director of the Illenau (Baden) Institute, died at the age of 76. In 1873 he was given an honorary degree of the Freiburg University. He also was an honorary member of many psychiatric societies in this and foreign countries. Since 1877 he was associate editor of the *Allgemeine Zeitschrift für Psychiatrie.*

December 11, Privy Councilor Leser, the editor of a well known textbook on special surgery, died at Frankfort-on-the-Main. He was a pupil of von Volkmann.

Privy Councilor Pelman, director of the Psychiatric Clinic in Bonn, died, December 31, aged 79 years.

On the same day Professor von Zehender, formerly ordinary professor of ophthalmology in the Rostock University, died at the age of 97.

December 29, B. S. Schultze of Jena celebrated his eighty-ninth birthday.

December 31, Privatdozent Prof. A. Pappenheim of Berlin died of typhus. He was 46 years of age. He received distinction because of his work in hematology. His contribution to "the cells in leukemic myelosis," of which the studies of normal and pathologic blood cells are a part, deserves special mention. He was the founder and editor of the *Folia haematologica.*

Congress of Internal Medicine

The German Congress of Internal Medicine will be held in April, 1917, under the chairmanship of Professor Minkowski. The most important subjects for discussion will be: 1. Nutrition during the war, by M. Rubner (Berlin) and F. von Müller (Munich). 2. Constitutional diseases, by F. Kraus (Berlin) and A. Steyrer (Innsbruck). 3. The rare infectious diseases of the war. War experiences in the field of internal medicine will also be discussed.

The Number of Medical Graduates

During the scholastic year 1914-1915, 1,038 candidates for the medical degree received professional approbation (1913-1914, 3,822). There were seventy-two (1913-1914, 148) women. The graduate degree in dentistry was conferred on fifty men (1913-1914, 195) and twelve women (1913-1914, ten). The number of women medical students is continually increasing. During the winter semester 1908-1909 there were 334; in 1915-1916, 1,229, almost a fourfold increase. The number of women students in all the German colleges was much greater than this; in 1908-1909, there were 1,077; in 1915-1916, there were 4,796, almost a fivefold increase. The diminution in the number of medical graduates and licentiates was caused by the war. This was to be expected. In 1912-1913 the official sanction was given to 1,447, and in 1913-1914 there were 3,822 licentiates.

Work of the Central Committee of the German Red Cross.

During the first two years of the war the central committee of all the German Red Cross organizations disposed of 80,000,000 marks ($20,000,000). This does not include the funds handled by the societies of the individual German states, nor the women's societies, nor the central committee of the Prussian State Society. Thirteen and one-half million marks ($3,375,000) were spent for nursing alone, the money having been contributed in various ways. The sale of the so-called *Kaiserin-Kriegsfürsorge* (Empress first-aid) welfare card and several other picture cards realized 750,000 marks ($187,500). The so-called *Kreuz-Pfennig-Marken* (Red Cross stamps) realized 470,000 marks ($117,500). To these sums must be added the collections made for prisoners of war, furnishing of mineral water and food supplies for the injured, for Red Cross work in Turkey, etc., an additional 7,750,000 marks ($1,937,500). Five hospital trains were organized (costing nearly 1,000,000 marks [$250,000]); for the care of prisoners of war 713,000 marks ($178,250) were spent, and for gifts 4,500,000 marks ($1,125,000). More than 1,000,000 marks ($250,000) were spent to furnish mineral water for the troops in the field and for the base hospitals. A total of 17,000,000 marks ($4,250,000) was spent for war nursing during the first two years of the war. Ten million marks ($2,500,000) were collected, and 9,000,000 marks ($2,250,000) of this sum were spent in welfare work, such as aiding and contributing to the support of the war widows and war orphans, of the exiles and of other persons suffering from the war. The central committee distributed books, newspapers, etc., amounting to 7,500,000 marks ($1,875,000). The central committee of the Prussian State Society disposed of 30,000,000 marks ($7,500,000) during the first two years of the war. About 11,500,000 marks ($2,875,000) were spent for nursing (including ten hospital trains, costing 1,500,000 marks [$375,000] each, the equipment of the volunteer nurses 7,500,000 marks [$1,875,000]), and for war welfare work the committee collected 3,250,000 marks ($812,500), of which one half was spent.

Typhus in Poland

Shortly after the occupation of Russian Poland by the German troops, the commander-in-chief ordered the notification of all infectious and contagious diseases. This was done for the express purpose of combating typhus and smallpox. The result has been entirely satisfactory. During the last three months of 1915 there were 704 cases of typhus in Warsaw and thirty-two deaths from this disease. During the first three months of 1916 there were 5,256 cases and 428 deaths; during the second three months there were 6,294 cases and 507 deaths. During the third three months the number of cases fell to 2,309, with only 140 deaths. The incidence and mortality of smallpox was as follows: last three months of 1915, 955 cases and 157 deaths; first three months of 1916, 1,029 cases and 144 deaths; second three months of 1916, 918 cases and 130 deaths; third three months, 195 cases and twenty-three deaths. No case of cholera has been reported in the Warsaw district since October, 1915.

Hospital for Research in Psychiatry

A considerable number of founders, mostly members of the Kaiser Wilhelm Society, have united to erect an institution for research in psychiatry, acting on the suggestion of the German Psychiatric Society. At present the funds collected are not sufficient to finance an independent research institution, but the movement has furnished sufficient stimulus to insure the erection of a state institution in connection with the psychiatric clinic in Munich after the war is over.

Marriages

Malcolm D. B. Kinsella, M.D., North Bay, Ont., to Miss Jean Young of New Zealand, in London, England, recently.

Homer Hollett Oaksford, M.D., Gloversville, N. Y., to Miss Sarah Elizabeth Swinyer of Utica, N. Y., January 25.

Cornelius C. Kepler, M.D., to Miss Florence Howard, both of Jolley, Iowa, at Pocahontas Center, Iowa, January 24.

Dean Henry Jeffers, M.D., to Miss Lucretia Van Zandt, both of West Salem, Wis., recently.

John Miller Breen, M.D., to Wilhelmia Afton Ragland, M.D., both of New York, March 8.

Francis P. Norton, M.D., to Miss Gertrude Carpenter, both of Minto, N. D., February 20.

Benjamin B. Griffith, M.D., to Mrs. Flora K. Moore, both of Vincennes, Ind., March 6.

Elmer S. Bolton, M.D., to Miss Mary Salmen, both of Cleveland, January 4.

Deaths

Raleigh R. White, M.D., Temple, Texas; Tulane University, New Orleans, 1893; a Fellow of the American Medical Association; formerly president of the Central (Twelfth) District Medical Association; chief surgeon of the Gulf, Colorado and Santa Fe Division of the Santa Fe System; local surgeon of the Missouri, Kansas and Texas Railroad; one of the organizers of the Kings Daughters Hospital and Temple Sanitarium, Temple; a director of the City National Bank; died at his home, March 2, from angina pectoris.

Henry Leber Coit, M.D., Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1883; aged 62; a Fellow of the American Medical Association and of the New York Academy of Medicine; a widely known specialist on diseases of children; organizer of the first medical milk commission in the United States; first president of the American Association of Medical Milk Commissions, and president of the International Society of Gouttes de Lait, Budapest; died at his home, March 13.

Eliot Gordon, M.D., Summit, N. J.; Long Island College Hospital, Brooklyn, 1888; aged 53; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey and American Medico-Psychological Association; resident physician at the Fair Oaks Sanatorium, Summit; for fourteen years a member of the staff of the New Jersey State Hospital, Morris Plains; died at his home, March 3, from pneumonia.

William M. Kaull, M.D., Sawtelle, Calif.; New York University, New York, 1855; aged 83; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years a practitioner of Princeton, Ill.; assistant surgeon of the Seventy-Second Ohio Volunteer Infantry and surgeon of the Fortieth U. S. Infantry throughout the Civil War; died at his home, about March 1.

Samuel Mason McCollin, M.D., Philadelphia; Jefferson Medical College, 1878; aged 73; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania, American Roentgen-Ray Society and American Electro-Therapeutic Association; radiographer to the Philadelphia Orthopedic Hospital; died at his home in Llanerch, Pa., February 24.

Joe Vincent Meigs, Jr., M.D., Lowell, Mass.; Jefferson Medical College, 1889; aged 49; a Fellow of the American Medical Association; surgeon to St. John's, Lowell, and Lowell General hospitals; consulting surgeon to the State Infirmary, Tewkesbury; for eight years medical examiner of the Fifth Middlesex District; died in the Yorick Club, Lowell, March 9, from cerebral hemorrhage.

Charles Lambert Thomas, M.D., Crawfordsville, Ind.; Miami Medical College, Cincinnati, 1858; aged 84; surgeon of the Twenty-Fifth Indiana Volunteer Infantry during the Civil War; a member of the Montgomery County Bar; for two years a member of the city council of Crawfordsville and for several years a member of the board of education; died at his home, March 4.

James Aloysius Joseph O'Brien, M.D., New York; Queens University, Dublin, Ireland, 1867; aged 70; who entered the Medical Corps of the British Army in 1868; served during the Ashantee War in West Africa in 1873 and 1874, and was decorated for valor and was retired with the rank of surgeon-major in 1880; physician to the Ludlow Street Jail; died at his home, March 1.

Oscar F. Potter, M.D., St. Louis; Washington University, St. Louis, 1866; aged 87; for many years dean and professor of materia medica and medical botany in the St. Louis College of Pharmacy; editor of the *St. Louis Medical and Surgical Journal;* confidential agent of the United States government during the Civil War; died at his home, February 28, from pneumonia.

James W. Rousseau, M.D., Modesto, Calif.; University of Tennessee, Nashville, 1893; aged 56; formerly local surgeon for the Cincinnati, New Orleans and Texas Railroad at Greenville, Texas, and later surgeon to the Kentucky and Tennesee Railway at Stearnes, Ky.; a member of the school board of Modesto since 1908; died at his home, March 1, from heart disease.

William Henry Silbaugh, M.D., Chillicothe, Ohio; Miami Medical College, Cincinnati, 1895; aged 49; a member of the Ohio State Medical Association; secretary of the Ross County Medical Society; was accidentally killed at his home, March 1, by the discharge of a shotgun which he was placing in his automobile preparatory to a trip to his farm.

Edward Dyer Peters, M.D., Dorchester, Boston; Harvard Medical School, 1877; aged 67; who practiced medicine for a time and afterward specialized in mining engineering; territorial assayer of Colorado in 1872; lecturer and professor of metallurgy in Harvard University since 1904; an authority on copper smelting; died at his home, February 17.

Carl Gehr Parsons, M.D., Denver; Denver and Gross College of Medicine, Denver, 1904; aged 39; formerly a Fellow of the American Medical Association; a member of the American Association of Anesthetists; a specialist in anesthesia and anesthetist to the Denver City and County Hospital for twelve years; died at his home, March 5.

John Sample Long, M.D., Joplin, Mo.; New York University, New York, 1892; aged 61; formerly president of the Jasper County (Mo.) Association of Physicians and Surgeons; lecturer at St. John's Hospital and local surgeon of the Frisco System at Joplin; also a druggist; died in a sanatorium in Boston, March 3, from rheumatism.

Orson Millard, M.D., Flint, Mich.; University of Michigan, Ann Arbor, 1870; aged 71; formerly physician to the State School for the Blind; supreme medical examiner of the Loyal Guard, and formerly president of the Medical Section of the National Fraternal Congress; died in Oak Grove Hospital, Flint, February 26, from nephritis.

Eugene G. Matson, M.D., Pittsburgh; University of Pennsylvania, Philadelphia, 1883; aged 58; a Fellow of the American Medical Association; a specialist in bacteriology; for twenty years bacteriologist in charge of the City of Pittsburgh Laboratory; died in the West Penn Hospital, Pittsburgh, March 10.

Mahlon R. Pritchard, M.D., Westfield, Pa.; College of Physicians and Surgeons, Baltimore, 1880; aged 64; a Fellow of the American Medical Association and formerly president of the Tioga County (Pa.) Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, February 23.

Frank Edward Gessner, M.D., Port Jervis, N. Y.; University and Bellevue Hospital Medical College, New York, 1903; aged 35; a Fellow of the American Medical Association; for four years health officer of Port Jervis; died at the Interpines, Goshen, N. Y., March 6, following a nervous breakdown.

Frederick P. Minton, M.D., Millbury, Ohio; University of Louisville, Ky., 1893; aged 63; a member of the Ohio State Medical Association; who was injured in a collision between his automobile and a New York Central train, in August last, and never regained consciousness; died at his home, March 8.

William Samuel Cherry, M.D., New York; College of Physicians and Surgeons in the City of New York, 1899; aged 44; formerly house surgeon to St. Vincent's Hospital, and major of the Ninth Coast Artillery; died suddenly at the home of his father in Larchmont, N. Y., February 28.

John W. Fooks, M.D., Laurel, Del.; Jefferson Medical College, 1874; aged 64; also a druggist; a member of the state senate in 1910; appointed inspector under the Harrison Narcotic Law in 1915; died at his home, February 22, from acute nephritis, following ptomain poisoning.

William Waugh McCleary, M.D., Bellevue, Pa.; College of Physicians and Surgeons, Baltimore, 1884; aged 56; a member of the Medical Society of the State of Pennsylvania; surgeon to the Suburban General Hospital, Bellevue; died in the Presbyterian Hospital, Pittsburgh, March 5.

William Russell Stephens, M.D., DeLand, Fla.; Marion-Sims College of Medicine, St. Louis, 1892; Barnes Medical College, St. Louis, 1893; aged 46; a member of the Florida Medical Association and Mississippi Valley Medical Association; died at his home, March 5.

Joseph W. Marsh, M.D., Lewes, Del.; Jefferson Medical College, 1861; aged 77; formerly a member of the Delaware State Medical Society; a director in the Sussex Trust Company, Lewes, and representative in the state legislature in 1913; died at his home, March 9.

Emil August Ballmer, M.D., Columbus Grove, Ohio; Eclectic Medical Institute, Cincinnati, 1898; aged 58; a member of the Ohio State Medical Association; died at his home, Dec. 20, 1916, from fatty embolism of the coronary artery due to an injury five weeks before.

Florence Louisa Evans, M.D., East St. Louis, Ill.; Barnes Medical College, St. Louis, 1906; aged 41; a Fellow of the American Medical Association; a specialist in clinical pathology and bacteriology; died in Corpus Christi, Texas, March 7, from erysipelas.

John Williams Dunn, M.D., Turnersville, Tenn.; Vanderbilt University, Nashville, Tenn., 1880; aged 60; who had been prominently identified with the Planters Protective Association since its organization; died at his home, March 6, from heart disease.

Simon Harry Greene, Jr., M.D., New York; University of Pennsylvania, Philadelphia, 1901; aged 38; assistant in surgery in the Dispensary of the Presbyterian Hospital, New York; died at his home, March 1, from pneumonia.

Oscar B. Campbell, M.D., Cleveland; Western Reserve University, Cleveland, 1883; aged 69; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, March 2.

Edmond H. Ames, M.D., Antioch, Ill.; Detroit Homeopathic Medical College, 1874; aged 70; a veteran of the Civil War; formerly a member of the Illinois State Medical Society; died at his home, March 7, from cerebral hemorrhage.

Edward Sutton Chambers, M.D., Annona, Texas; Kentucky School of Medicine, Louisville, 1901; aged 41; formerly a member of the State Medical Association of Texas; died at his home, February 14, from pneumonia.

Sidney O. Smith, M.D., Ellisville, Miss.; Tulane University, New Orleans, 1882; aged 55; formerly a member of the Mississippi State Medical Association; died suddenly at his home, February 26, from heart disease.

LeRoy F. Weaver, M.D., Lansing, Mich.; Michigan College of Medicine, Detroit, 1884; aged 54; a member of the Michigan State Medical Society; also a druggist; died at his home, March 1, from cerebral hemorrhage.

Irene Hardy, M.D., Massillon, Ohio; University of Wooster, Cleveland, 1881; aged 67; formerly a member of the Ohio State Medical Association; died in the City Hospital, Massillon, February 28, from pneumonia.

Charles Stanton, M.D., Rockham, S. D.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; aged 60; a member of the State Medical Society of Wisconsin; died in his office, Dec. 29, 1916, from heart disease.

William L. Crump, M.D., Salisbury, N. C.; Jefferson Medical College, 1879; aged 59; formerly a member of the Medical Society of the State of North Carolina; died at his home, January 17, from tuberculosis.

George H. Beal, M.D., Elsie, Mich.; Detroit College of Medicine and Surgery, 1892; aged 46; village and township health officer for several years; died at his home, January 1, from valvular heart disease.

Henry M. Wilson, M.D., New Berlin, Pa.; Jefferson Medical College, 1877; aged 66; a member of the Medical Society of the State of Pennsylvania; died at his home, Dec. 11, 1916, from cerebral hemorrhage.

E. Thaddeus Barrentine, M.D., Society Hill, S. C.; Louisville (Ky.) Medical College, 1890; aged 45; a member of the South Carolina Medical Association; died at his home, February 26, from pneumonia.

William R. Wall, Jr., M.D., Cleveland; Cleveland Medical College, 1896; Cleveland College of Physicians and Surgeons, 1899; aged 48; was instantly killed in an automobile accident in Cleveland, March 2.

Joseph Taylor, M.D., Manchester, N. H.; Dartmouth Medical School, Hanover, N. H., 1894; aged 56; a Fellow of the American Medical Association; died in his office in Manchester, March 10.

Herbert Jones, M.D., Hamilton, Ont.; University of Toronto, Ont., 1904; aged 45; major, Canadian A. M. C.; a specialist in diseases of children; died recently from pneumonia, while serving overseas.

George Howard Thompson, Jr., M.D., Seattle Wash.; Cooper Medical College, San Francisco, 1894; aged 50; died in the Hahnemann Hospital, San Francisco, February 22, from myocarditis.

Thomas David Miller, M.D., Kansas City, Mo.; St. Louis College of Physicians and Surgeons, 1883; aged 60; died in Grace Hospital, Kansas City, February 26, after a surgical operation.

Theron W. Horton, M.D., Honcut, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1863; for nearly thirty years a practitioner of Honcut; died at Los Angeles, February 28.

John T. McCarthy, M.D., Baltimore; Baltimore Medical College, 1893; aged 53; a member of the board of police surgeons of Baltimore from 1901 to 1905; died at his home, March 7.

Ora Owen Sawyer, M.D., Dell Rapids, S. D.; Rush Medical College, 1879; aged 60; formerly a Fellow of the American Medical Association; died at his home, March 1, from general paresis.

George T. Parks, M.D., Lancaster, Texas; University of Tennessee, Nashville, 1887; aged 55; a member of the State Medical Association of Texas; died at his home, February 24.

Stephen B. Rozier, M.D., Fayetteville, N. C.; Medical College of Virginia, Richmond, 1855; aged 84; for fifty years a practitioner of Robeson County; died at his home, March 4.

Jacob Butler, M.D., East St. Louis, Ill.; Medical College of Evansville, Ind., 1878; aged 66; formerly a member of the Illinois State Medical Society; died at his home, March 2.

Charles S. McLaughlin, M.D., Glens Falls, N. Y.; University of Vermont, Burlington, 1880; aged 60; surgeon to the Park Hospital, Glens Falls; died at his home, March 5.

A. Lee McCormick, M.D., Cincinnati; Pulte Medical College, Cincinnati, 1883; aged 59; while making a professional call, February 26, died suddenly from heart disease.

Frederick Walter Coffin, M.D., Chagrin Falls, Ohio; Rush Medical College, 1868; aged 71; also a pharmacist; died at his home, February 27, from angina pectoris.

Benjamin F. Welch, Soso, Miss. (license, Mississippi, 1882); aged 66; formerly a member of the Mississippi State Medical Association; died at his home, March 2.

Chester Arthur Winn, M.D., Alton, Ill.; Rush Medical College, 1889; aged 57; died, February 21, in Cuba, Mo., where he had gone in hope of bettering his health.

James T. McDonald, M.D., Ellsworth, Me.; Hahnemann Medical College, Philadelphia, 1890; aged 49; died at his home, January 2, from tuberculosis.

Francis M. Metcalf, M.D., Kansas City, Mo.; Beaumont Hospital Medical College, 1893; aged 55; died at the home of his son in Kansas City, March 10.

Walter F. Burton, M.D., Kansas City, Mo.; Kansas City (Mo.) Hospital College of Medicine, 1885; died at his home, February 28, from chronic nephritis.

William J. French, M.D., Frankton, Ind.; Cincinnati College of Medicine and Surgery, 1879; aged 64; died at his home, March 5, from diabetic gangrene.

Thomas F. Betts, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1866; aged 73; died at his home in Oak Lane, Philadelphia, March 8.

William Henry Johnston, M.D., Selma, Ala.; New York University, New York, 1867; died recently at his home.

William Dietrich, M.D., West Hoboken, N. J.; Baltimore University, 1905; died at his home, about February 20.

Louis Joseph Wirtz, M.D., West Hoboken, N. J.; Baltimore University, 1904; aged 35; died recently at his home.

John W. Smith, M.D., Plymouth, Ind.; Jefferson Medical College, 1877; aged 61; died at his home, January 2.

James G. Van de Walker, Hammond, Ind. (license, Indiana, 1897); aged 82; died at his home, January 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE SARGOL CASE

The Origin, Development and Destruction of a Fraud

The essential facts regarding Sargol, the get-fat-quick nostrum—most of which have already been given in THE JOURNAL—are that its exploiters were found guilty of fraud and were fined $30,000 after promising that the business would be discontinued. The fine was paid and on Feb. 27, 1917, the Post-Office Department issued a fraud order against the Sargol Company denying it the use of the mails.

The Sargol business was started in 1908 by Wylie B. Jones and Oliver C. Kingsley at Binghamton, N. Y. In December, 1912, Kingsley dropped out of, and Herbert B. Woodward went into, the business with Jones. Jones, the controlling power in the concern, is an advertising man, and operates the Wylie B. Jones Advertising Agency at Binghamton. He also conducts another "patent medicine" concern, the "Dr. Howard Company," which sells such nostrums as "Palm Vine," "Dr. Howard's Specific," etc.

Be Plump and Well Developed—Use
"Sargol"—The Flesh Builder
50-CENT PACKAGE GIVEN FOR TRIAL
SARGOL
The Picture of Health
Summer Days Are Flesh-Building Days
WE INVITE
EVERY THIN MAN AND WOMAN
What a Handsome Couple

The Sargol Company was able to defraud the public out of millions because newspapers and magazines were willing to act as paid "go-betweens." Here are photographic facsimiles (greatly reduced) of full page advertisements that at one time appeared in such magazines as *McClure's*, the *Illustrated World*, *Cosmopolitan*, etc. There is also in this group a quarter-page advertisement (reduced) from the *National Druggist*.

Sargol was advertised through newspapers and magazines of a certain type and the business, generally, was conducted on the mail-order plan rather than through drug stores, although a certain amount of drug store trade had been developed at the time it was put out of business. The newspaper and magazine advertisements, together with the other advertising matter that was sent out when a prospective victim had been brought in touch with the Sargol Company, represented in brief:

THE CLAIMS FOR SARGOL

1. That Sargol was a wonderful new discovery which could be depended on permanently to increase the weight of the body ten, fifteen or even thirty pounds.
2. That Sargol was the result of the combined experience of many prominent specialists in dietetics who believed that the usual diet rules more often fail than succeed.
3. That Sargol was in effect the most marvelous body builder which medical science has produced.
4. That Sargol would, in an incredibly short space of time, produce a marvelous increase in weight regardless of the cause of the lack of weight, whether inherited, from overwork or wasting disease or the result of abuse, dissipation, etc.
5. That when the Sargol "treatment" was under way it was possible for the patient to go about his business as usual and still put on flesh at the rate of a pound a day.
6. That Sargol was a marvel in quickly and permanently rounding out the feminine form, filling out the face to a perfect oval, making the neck and bust firm and plump and rounding out the arms and legs to graceful proportions.
7. That Sargol would put flesh just where it was most needed.
8. That Sargol was the missing link in the chain of human health and vitality—that the certainty of a thin person getting fat depended almost entirely on Sargol.

SARGOL MADE BY PARKE, DAVIS & CO.

Such were the claims by which the Sargol concern pilfered from the public an amount that has been estimated at $3,000,000. When the case came to trial it was shown that Sargol instead of being a wonderful new discovery was, in fact, merely a formula devised after a short consultation between Wylie B. Jones and the man who has charge of the "private formula" department of Parke, Davis & Co. Sargol was made by Parke, Davis & Co. and billed to the "Dr. Howard Co." as "Tonic Tabs," at a price of from 53 cents to 78 cents a thousand tablets; they were sold at the rate of $25 a thousand. When the manager of Parke, Davis & Co.'s "private formula" department was on the stand he testified that his firm made other pills, as well as a vaginal tablet, for the "Dr. Howard Co." The "formula" for Sargol—as devised by Parke, Davis & Co.'s agent and Jones—contained:

Extract saw palmetto	2	Grains
Hypophosphite calcium	¼	Grain
Hypophosphite sodium	¼	Grain
Hypophosphite potassium	¼	Grain
Lecithin	¼	Grain
Extract nux vomica	1/12	Grain

The trial lasted thirteen weeks. Mr. O. B. Williamson, a post-office inspector, collected the evidence for the government and was assisted by post-office inspectors Frank E. Shea of New York and Samuel J. Killian of Binghamton. The government called, among other experts, Drs. Louis F. O'Neill and J. P. Creveling of Auburn, N. Y., Dr. Harvey W. Wiley of Washington and Dr. Lyman F. Kebler of the Bureau of Chemistry. In addition to his testimony, Dr. Kebler gave Mr. F. J. Cregg, the United States Attorney who had charge of the case, invaluable assistance during the entire course of the long drawn out trial. The medical testimony submitted by the government proved beyond controversy that the pretenses set out by the Sargol concern were absolutely worthless so far as flesh or tissue building is concerned. It was admitted that some of the constituents were in some degree tonic but that none of them, taken singly or in combination, could affect the weight of the thin or emaciated. It was further brought out that even if Sargol were efficacious in increasing weight in a given case, the representations made for it would still have been false and fraudulent because they were so comprehensive as to include increase in weight of those who were thin from any cause. Judge Lamar, solicitor for the Post-Office Department, summed up the matter in his memorandum to the Postmaster-General:

> ". . . it is a well recognized medical fact that in order successfully to overcome this condition it is necessary to individualize the case, determine the cause of the condition, and prescribe for the subject a treatment adapted to his own case; and that no one treatment could by any possibility supply the lack of weight in all individuals regardless of the causes thereof or of the particular conditions present."

The trial also brought out the fact that people suffering from lack of weight due to tuberculosis, diabetes, Bright's disease or chronic diarrhea extending over a long period of years who wrote to the Sargol Company were urged to use Sargol and told that it would overcome the lack of weight. It was also shown that persons who had written to the company stating that they were suffering from nervousness and excitability following the removal of the ovaries, and due to such conditions as long continued dyspepsia, catarrh of the bladder of nine years' standing, abdominal tumor and pernicious anemia, also were told to take Sargol and informed that it would overcome their nervousness and irritability.

Of course, the Sargol Company had no difficulty in producing "experts" to uphold its claims. There never was a medical swindle so preposterous that members of the medical profession could not be hired to defend it. The Sargol case recalls the disgraceful state of affairs that was disclosed at the Wine of Cardui trial when the American Medical Association was put on the defensive because of its activities in attempting to protect the public from medical humbug. In that trial the "patent medicine" interests were able to employ members and fellows of the American Medical Association who not only lent aid and comfort to the enemies of the public health but attempted to discredit the testimony of decent physicians who belonged to the same organization of which these persons were members.

WE INVITE
EVERY THIN MAN AND WOMAN HERE
Every Person in Minneapolis and Vicinity to Get Fat at Our Expense
w To Get Fat Free.
6 Box of New Discovery Free.
HOW THIN PEOPLE MAY PUT ON FLESH
THE SARGOL COMPANY
THIN, RUN DOWN MEN AND WOMEN
GAIN IN WEIGHT FROM TEN TO FORTY POUNDS

Extensive advertising was done in the newspapers both in the United States and Great Britain. In addition, the Sargol Company sent out large quantities of advertising circulars. Here are greatly reduced facsimiles of some of the advertising from these sources.

SARGOL "EXPERTS"

So in the Sargol case we find appearing in defense of this outrageous fraud physicians who, by virtue of their membership in their county and state societies, were enabled to become Fellows of the American Medical Association. They were:

Ernest Ellsworth Smith, M.D., New York City.—Member of the New York Medical Society, Member of the Medical Society of the State of New York.

Howard L. Davenport, M.D., Auburn, N. Y.—Member of the Cayuga County Medical Society, Member of the Medical Society of the State of New York.

Michael P. Conway, M.D., Auburn, N. Y.—Member of the Cayuga County Medical Society, Member of the Medical Society of the State of New York.

Gibson Benjamin Mack, M.D., Auburn, N. Y.—Member of the Cayuga County Medical Society, Member of the Medical Society of the State of New York.

Ernest Ellsworth Smith, who testified that he devotes himself "especially to the specialty of nutrition," has appeared against the government in a number of cases. In 1910 the government was making a determined effort to break up the traffic in rotten eggs, a business that had reached huge proportions. For three years previously it had tried to put a stop to the business without any great amount of success. Then it prosecuted a man who was said to be the largest dealer in putrid eggs in the "rotten-egg district" of New York. He was charged with shipping a putrid mass of frozen egg product containing mold, blood clots, heads of embryo chicks, etc. After a trial before a jury he was found guilty and fined the maximum penalty for a first offense under the federal law. The "expert" employed by this dealer in rotten eggs in defending himself against the government's charges was Ernest Ellsworth Smith!

In 1912 the United States government proceeded against a concern that sold "specialties" for confectioners. One of the "specialties" the company was charged with selling was a varnish used, it seems, in the trade, for the purpose of coating fudge candy. This varnish, the government charged, contained appreciable quantities of arsenic. The company was found guilty by the jury, although it afterward appealed the case. The company employed an expert in this case whose testimony was to the effect that the amount of arsenic present would not, in his opinion, be injurious to health. This expert was Ernest Ellsworth Smith!

In 1915 the government seized a number of packages of "Dr. Williams' Pink Pills for Pale People." This "patent medicine" was sold as a remedy for locomotor ataxia, partial paralysis, St. Vitus' Dance, rheumatism, leukorrhea, dysmenorrhea, spermatorrhea, impotence, etc. These claims the government charged were false and fraudulent. The Dr. Williams Medicine Company took exceptions to the government's actions and attempted to defend the claims. The jury, however, decided that the government's contention was right and the court ordered the stuff destroyed. The company in this case also appealed. One of the experts to testify to the wondrous virtues of Williams' Pink Pills for Pale People was Ernest Ellsworth Smith. Smith admitted that he had prescribed these pills without a full knowledge of their composition.

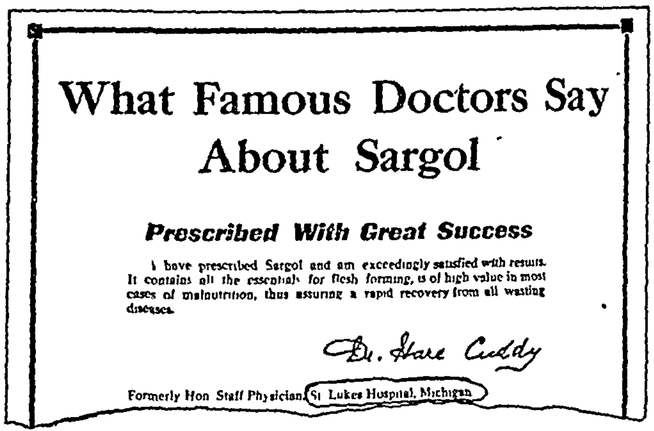
In addition to the medicolegal activities, Smith's articles on behalf of sodium benzoate, which appeared at the time of the controversy on this subject, will be remembered by many. Many physicians have doubtless received a brochure stamped "With Author's Compliments" and dealing with "Protein Diet for the Sick and Convalescent." It is a puff for that preposterously advertised nostrum "Sanatogen"; its author is E. E. Smith!

A "BUST DEVELOPER" ADVERTISEMENT!

Before leaving Dr. Smith, the following extract from the testimony during the Sargol trial is much too interesting to be allowed to remain buried in legal archives. Dr. Smith is testifying as to the effect of saw palmetto on a flat-chested but otherwise normally healthy female:

> "*Question.*—What is the effect, if any, as you have spoken of, of the use of sabal (saw palmetto) on the bust of a female?
>
> "*Dr. Smith.*—In the thin undeveloped condition of the bust the effect is to stimulate the growth and development of the bust to the ideally normal condition."

Of the other physicians who testified for the Sargol concern, Dr. Mack of Auburn was withdrawn from the stand



What Famous Doctors Say About Sargol

Prescribed With Great Success

I have prescribed Sargol and am exceedingly satisfied with results. It contains all the essentials for flesh forming, is of high value in most cases of malnutrition, thus assuring a rapid recovery from all wasting diseases.

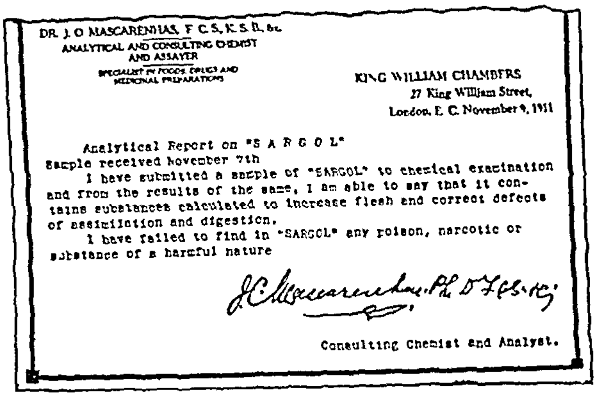
Dr. Hare Cuddy

Formerly Hon Staff Physician St Lukes Hospital, Michigan

Reports from alleged "famous doctors" were part of the advertising paraphernalia of the Sargol concern. Here is a reduced facsimile of what purported to be a report from "Dr. Hare Cuddy, *Formerly* Hon. Staff Physician, St. Luke's Hospital, Michigan." If there ever was a Dr. Hare Cuddy, we have been unable to locate him. The "St. Luke's Hospital" was a fraudulent concern that existed only on paper. Quacks all over the country have "certificates of membership" framed in their offices purporting to show that they are on the "staff" of "St. Luke's Hospital."

before his testimony was completed and all of his testimony stricken from the record. This action followed his cross-examination by Attorney Cregg when it was shown that Dr. Mack was the family physician of one of the jurors and before testifying had discussed the probable effect his testimony might have on this juror.

Drs. Conway and Davenport both testified, in effect, that, among other things, taking four Sargol tablets a day for sixty days would increase the weight of a person who was naturally thin or who had become thin following some wasting disease or who was thin through malassimilation of food or from nervous indigestion of long standing. They further testified, in effect, that Sargol would tend to increase the weight of a tuberculous subject and would remove such nervous irritability or excitability as might follow the removal of the ovaries. Dr. Conway testified that in cases of pernicious anemia the "individual's blood would be changed for the better" by taking Sargol and that in cases of catarrh of the bladder Sargol would be of marked benefit because it would tend to increase weight and to cure the local condition. Dr. Davenport expressed the opinion that Sargol would tend to increase the weight of consumptives and of persons suffering from "kidney trouble," chronic diarrhea, catarrh of the bladder and pernicious anemia.



DR. J. C. MASCARENHAS, F. C. S., K. S. B., &c.
ANALYTICAL AND CONSULTING CHEMIST
AND ASSAYER
SPECIALIST IN FOODS, DRUGS AND
MEDICINAL PREPARATIONS

KING WILLIAM CHAMBERS
27 King William Street,
London, E. C. November 9, 1911

Analytical Report on "S A R G O L"
Sample received November 7th

I have submitted a sample of "SARGOL" to chemical examination and from the results of the same, I am able to say that it contains substances calculated to increase flesh and correct defects of assimilation and digestion.

I have failed to find in "SARGOL" any poison, narcotic or substance of a harmful nature

J C Mascarenhas, Ph. D. F. C. S.

Consulting Chemist and Analyst.

Fake "analytical reports" were also used by the Sargol concern. Here is a reduced facsimile of one of these. Sargol is not the only humbug that Mascarenhas has "reported" on.

THE WORTHLESS "GUARANTY"

In common with most medical mail-order fakers, the Sargol Company published an alleged guarantee promising to return without question the price paid for the treatment if the purchaser did not regard the results as satisfactory. After the purchase had been made this promise was qualified in such a manner as to make it of little, if any, value to the purchaser. The victim was advised that in order to obtain a refund it would be necessary for him to certify that he had taken the treatment faithfully every day and that during the entire period he had not been subject to any attack of sickness. Furthermore, it was necessary that he have two witnesses certify to the same fact. An additional requirement was that all the box covers in which the Sargol came, six in all, must be returned as a prerequisite to the refund.

FAKE ANALYTICAL REPORTS

The Sargol concern, to strengthen its claims for the nostrum, published what purported to be analytical and professional reports from alleged famous physicians and chemists. One of the reports was from a "Dr. J. C. Mascarenhas, F. C. S., K. S. B., &c" of London. Our files show that Mascarenhas has been connected with a fake degree-conferring organization, the "Society of Science, Letters and Art of London." Other American "patent medicine" fakers use his alleged analytical reports as advertising ammunition. Mascarenhas' report says that he failed to find any "poison" in Sargol. This may be due to the fact that the Sargol sold in Great Britain, unlike that sold in this country, had no strychnin in it. The British law would have required the package to be labeled "poison" had it had the composition of the American Sargol.

Another testimonial from an alleged "famous doctor" was from one "Dr. Hare Cuddy, Formerly Hon. Staff Physician, St. Luke's Hospital, Michigan." As many of The Journal readers remember, "St. Luke's Hospital," which existed chiefly on paper, was a scheme conducted from Niles, Mich., by a quack named Probert who peddled certificates of membership in the hospital—price $25. Quacks all over the country have these "diplomas of membership" framed in their offices. In commenting on the alleged noted endorsers of Sargol, the solicitor of the Post-Office Department said: "The investigation developed the fact that in some instances there never had been such physicians *in esse* and that in other instances they were quacks entitled to no credence whatever."

THE PROFESSION'S RESPONSIBILITY

The Sargol case has many points of interest to the profession. For some years the Propaganda department of The Journal has been receiving letters from physicians calling attention to Sargol and asking why it was possible for such an obvious swindle to be perpetrated year after year, and no action be taken. The facts in the Sargol trial answer this question. The postal authorities went to great trouble to collect evidence for the purpose of protecting the public against this fraud. The trial lasted many weeks and is said to have cost the United States more than $100,000. Although the business was palpably fraudulent, although the claims made for the nostrum were patently false, the defendants were able to employ physicians, who held membership in their local societies and, through that membership, fellowship in the American Medical Association, to go on the stand and swear that Sargol was a "flesh builder" and "bust developer"! Is it any wonder when such conditions obtain within the medical profession that officials whose duty it is to protect the public against fraud hesitate to attack humbugs of a medical nature? Medical fraud flourishes not only because of the credulity of the public but also because of the low ideals or the venality of a few members of the medical profession.

Correspondence

Unauthorized Use of Name of Dr. W. W. Keen

To the Editor:—March 2, I received from Dr. S. R. Maxeiner, secretary of the Hennepin County Medical Society in Minneapolis, a letter enclosing a copy of a letter sent out by the Lawrence Sanatorium of Minneapolis. Since then I have received two other identical letters signed personally by W. D. Lawrence, of whom I had never before heard.

These letters disclosed the fact that Lawrence was using my name without authority as a quasi-endorsement of his sanatorium. The three letters are identical in wording. They begin:

> We are pleased to announce that we have recently associated with our Sanatorium staff a very eminent surgeon who until the past year has been surgeon-in-chief of a large European hospital.
>
> Dr. W. W. Keen . . . in a letter of introduction said,
>
> "I take pleasure in introducing to you my friend, Dr. Egilsrud, of Norway," etc.

I enclose also two cards, one called an "associate physican's card," in which W. D. Lawrence announces to every doctor to whom these cards have been sent that he is an "associate physician" of the sanatorium and is entitled "to a fair participation in all fees from patients referred by you with introduction to the Lawrence Sanatorium." The other card is one which is to be sent by the associate physician introducing his friend Mr. —— to the Lawrence Sanatorium.

The simple facts are these: I had had some correspondence with Dr. Egilsrud about the middle nineties. In 1899 I saw him very pleasantly in Tromsö, Norway. Somewhat over a year ago Dr. Egilsrud made his second visit to the United States. He had left Norway in consequence of the war, and wanted to establish himself in this country and then bring his family over. Besides this he wished to do some professional writing. I urged him to go to the Northwest, especially to Minnesota, where many Scandinavians were settled. While there he should perfect himself in English, then pass the examination and enter into practice.

I gave him personal letters to a number of physicians by name, but as he was very uncertain where he would settle, I think I gave him an additional letter not addressed to any particular surgeon, or possibly it may have been addressed "To whom it may concern." When one is doing a friendly act like this one does not preserve a copy of such letters. Hence my uncertainty.

The wording of this circular of W. D. Lawrence that Dr. W. W. Keen in a letter of introduction said "I take pleasure in introducing to you my friend, Dr. Egilsrud, of Norway," etc., while it does not so state distinctly, would lead any superficial reader to suppose that I had given a letter introducing Dr. Egilsrud to W. D. Lawrence, and had thus impliedly endorsed the Lawrence Sanatorium and its methods, which I never would do.

My interest in the welfare of Dr. Egilsrud, who is a most excellent surgeon, was the sole motive for my doing what I could to help him as a friend.

I have never yet given a letter knowingly, or in any other way recognized a fee-splitting institution such as this is. I beg to warn any one against accepting the statement made by W. D. Lawrence as to myself. I have written to W. D. Lawrence, forbidding him hereafter to use my name in any manner whatsoever.

I should add that I have received a letter from Dr. Egilsrud, dated March 6, in which he shows that in his ignorance of American customs he has been innocently misled into his association with this sanatorium.

W. W. Keen, M.D., Philadelphia.

Why I Favor Compulsory Health Insurance

To the Editor:—I favor compulsory health insurance:

1. Because I believe that medical science and art, the creation of generations of effort and experience, cannot rightfully be used for the exclusive benefit of the few.

2. Because, having an instinctive desire to see fair play, I cannot be indifferent to a public measure which aims to protect the bodies of children from disease, just as our public school system seeks to protect their minds from premature arrest and decay.

3. Because I have learned from personal contact with thousands of hospital patients, and through investigations carried on in the homes of such patients by district nurses, that free hospital care, without other aid, only partially relieves the distressing situation which arises in the home of a worker whose earning power ceases when he is stricken with disease.

4. Because a large proportion of the industrial workers of the community are without needed medical attendance.

5. Because a still larger proportion, though receiving some medical attention (chiefly gratuitous), do not receive prompt or adequate medical care.

6. Because under existing conditions, workers whose wages are below $1,200 per annum cannot purchase adequate medical care for themselves or their families.

7. Because I believe that a high grade of medical service for the great mass of the wage-earning population is unattainable without organization.

8. Because under voluntary health insurance most of those who need health insurance do not obtain it.

9. Because I believe that the health of the people is the proper concern of the state.

10. Because I believe that the employer has a certain measure of responsibility for, and an economic interest in, the health and welfare of his employees.

11. Because industrial conditions which are inimical to health can be most readily disclosed and most effectively dealt with under a scheme of health administration in which the insured workers are grouped mainly according to occupation.

12. Because an insurance fund to which the state, the employer and the employee contribute should be collected and distributed by the representatives of the three contributing members or groups, for the sole benefit of the insured.

13. Because I believe that medical men should participate actively in the management of any organization which involves the activities and welfare of a large part of the medical profession.

14. Because the measures under consideration in New York and elsewhere (I refer to the so-called "standard" bill) are the result of long study of existing conditions by competent and disinterested persons, and of hundreds of discussions and conferences in which every shade of industrial, social and medical opinion has been represented; and because, after painstaking investigation, state commissions in two states have reported their approval of the principles embodied in the bill.

15. Because the most progressive life insurance companies, while under no legal obligation to do so, have within recent years voluntarily undertaken to provide certain medical benefits for their policy holders, thus tacitly admitting that medical neglect is a common condition among policy holders.

S. S. Goldwater, M.D., New York.
Director, Mount Sinai Hospital.

Temporary Suspension of Activities of the Medical Brotherhood

To the Editor:—In The Journal, July 31, 1915, an appeal to members of the medical profession was published which was signed by a committee composed of about 150 members of the leading medical men of this country. The attention of the profession was called to the facts that no discovery in medical sciences has been utilized by any of the belligerents in the present European war for the purpose of destroying the enemy; that the services of medical men in each of the warring countries consists exclusively in ministering to the sick and to the injured, and finally that in these humanitarian services friends and foes are treated alike. This appeal led to the establishment of the Medical Brotherhood, which contains at present about 16,000 members, all of whom are American citizens with the exception of Sir Wilfred Grenfell. The vast majority of members belong to the American Medical Association. Not a single individual has withdrawn his membership. Many prominent men from other neutral countries asked to be enrolled in our organization. In most of these countries, organizations similar to ours were established.

The purpose of my present communication is to state that on the second of last month, that is, as soon as the last German note on its U-boat policy became known, and before our president delivered his address before Congress, *I suspended sending out our literature.* It seemed quite evident to me that the German note would lead to a serious tension between our country and the central powers and perhaps even to war. A transitional stage of suspense and confusion was bound to come, and it seemed to me to be the duty of every citizen to avoid anything which might be misconstrued. It was conceivable that the activities of the Medical Brotherhood might be interpreted by some as being unpatriotic and not in line with the duties of a citizen to his country and its government.

For this temporary suspension of our activities the president of the brotherhood takes the entire responsibility.

S. J. Meltzer, M.D., New York.
President of the Medical Brotherhood.

"Current Views Regarding the Tonsils and Their Surgical Removal"

To the Editor:—Your editorial on this subject (The Journal, March 17, 1917, p. 851) is at least amusing, if not scientific. Experience is of more value than theory; therefore, if you wish to discuss a subject scientifically, you should place yourself in a position to see clinical results. Consequently come to western Kansas where "inflamed tonsils," are removed daily for the cure of arthritis, nephritis, endocarditis and the prevention and cure of otitis media and its complications, as well as the "tonsillitis." Come out where we treat "diphtheritic tonsillitis" by removing the foci of infection and without administering "antitoxins."

Thomas L. Higginbotham, M.D., Hutchinson, Kan.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BETAIN HYDROCHLORID AND HYDROCHLORIC ACID—ACIDITY OF URINE—ESTIMATION OF SECRETION—ALBUMINOUS FOOD REMNANTS IN STOOL

To the Editor:—Please answer the following questions:

1. How does betain hydrochlorid compare with dilute hydrochloric acid weight for weight? Is it as efficient as the latter in the treatment of anacidity? Can it produce any deleterious effects when taken over a long period of time? Please give references to the literature on the subject.

2. Is the reaction of the urine affected by hyperacidity or hypo-acidity of the stomach?

3. Is it logical to make deductions from a single estimation of the hydrochloric acid in the stomach?

4. Is the presence of an abnormal amount of undigested albuminous elements in the stool always presumptive evidence of anacidity?

Please omit my name if these questions are answered in The Journal.

X. Y. Z.

Answer.—1. Betain hydrochlorid contains 23.8 per cent. of absolute hydrochloric acid, and the usual dose, 0.5 gm. (8 grains), corresponds to about 1.1 c.c. (18 minims) of dilute hydrochloric acid, U. S. P. Betain hydrochlorid in solution dissociates hydrochloric acid, but it does not dissociate it completely so that it is not quite so efficient in aiding the action of pepsin as an equivalent amount of hydrochloric acid. The use of betain hydrochlorid as a substitute for hydrochloric acid has no obvious advantage over the use of hydrochloric acid itself, and it is far more expensive. The pharmacologic effect of the betain part of the molecule is similar to that of chlorin, but is not so strong. It lowers blood pressure. It is apparently not toxic to rats even in enormous doses, but it is impossible to say whether if administered over a long period of time to human beings it might not produce some effect. Its pharmacology is not very well known. A short statement of its action will be found in New and Nonofficial Remedies, 1917, and in Sollmann's new Manual of Pharmacology, and some references are there given to the literature. Its action in peptic digestion will be found in a paper by J. H. Long, "On the Physiological Activity of Combined Hydrochloric Acid" (Jour. Am. Chem. Soc., 1915, **37**, *1333*).

2. The urine normally becomes less acid or even alkaline when hydrochloric acid is secreted in the stomach. There is, however, no known definite relation between hyperacidity, anacidity or hypo-acidity in the stomach and urine reaction. The urine may be reduced in acidity in conditions of anacidity in the stomach instead of being more acid, as one might expect. The reaction of the urine is closely dependent on the food. A protein diet, or the metabolism of the proteins of the body, tends to make the urine acid by the production of sulphuric, phosphoric and some organic acids. The ash of meat is acid whether this burns in or out of the body. A vegetable diet reduces acidity of the urine because vegetables and fruits contain the alkali salts of organic acids which are burned in the body to carbonates, which are alkaline, and these are excreted in the urine. The ash of plants is alkaline.

3. No. Several examinations should be made before safe conclusions can be drawn.

4. No. Much depends on the amount and character of the protein eaten, on the completeness of mastication, on motility of the tract, and on conditions in the intestine. Simon says that muscle fibers are found in every stool whenever meat has been eaten. Under normal conditions, however, they are not numerous, unless particularly large quantities have been ingested. In pathologic conditions it is necessary to determine whether or not albuminous food remnants are present in abnormal amounts, presupposing, of course, that abnormal quantities have not been taken. An increase in such food remnants will be observed in such conditions. Webster says that lack of digestive power of the stomach itself will have little influence on intestinal digestion, provided the pancreatic secretion is sufficiently active, with the exception that raw or smoked connective tissue will be undigested and will appear in the feces. Motor disturbances of the stomach and intestine must also be taken into consideration when food residues greater than normal in amount are found in the feces. Webster again says, lientery is much less frequent in motor disturbances of the stomach than in those of the intestine. In cases of increased intestinal motility, more food residue will be found in the feces than under normal conditions. Marked disturbances of protein and fat digestion, evidenced by intense lientery, will occur if the pancreatic secretion is insufficient. This is even more marked if gastric disturbance coexists. A final factor which influences lientery is the insufficiency of the absorbing power of the intestine. This increases the food residue by retarding digestion. Only in exceptional cases, Webster says, can one judge of the specific factor at the bottom of lientery; a boundary lying between the normal and the abnormal being drawn with difficulty.

THE SCHMIDT DIET

To the Editor:—Please give me a list of the foods and amount of each which make up a Schmidt diet in the treatment of diarrhea, so much spoken of in Cabot's differential diagnosis.

Please omit my name if this is published.

W. H.

Answer.—Schmidt's diet consists of 1.5 liters of milk; zwieback, 100 gm.; 2 eggs; butter, 50 gm.; beef, 125 gm., raw weight; boiled potato, 190 gm., and a gruel made of 80 gm. of oatmeal. This is distributed throughout the day as best suits the patient. The diet contains 102 gm. of protein, 111 gm. of fat and 191 gm. of carbohydrates, yielding 2,234 raw calories. In cases which show a diarrhea due to the milk, instead of 0.5 liter of milk, the same amount of cocoa made from 20 gm. of cocoa powder, 10 gm. of sugar, 100 gm. of milk and 400 gm. of water may be used. Small variations in the amount of milk, sugar, butter and even of eggs may be permitted, but the outline as regards meat, zwieback, potato and gruel should be rigidly adhered to.

LITERATURE ON INDUSTRIAL DISEASES

To the Editor:—I would appreciate very much if you can give me a list of textbooks or recent publications dealing with industrial diseases.

Gordon Bates, Toronto.

Answer.—

Oliver: Dangerous Trades, New York, E. P. Dutton, $8; Diseases of Occupation, New York, E. P. Dutton, $3; Lead Poisoning, New York, Paul B. Hoeber, $2.
Greer, W. J.: Industrial Diseases and Accidents, Bristol, J. W. Arrowsmith, 1909, 339 pages.
Rambousek, J.: Industrial Poisoning, New York, Longmans, Green & Co., 1913, 360 pages, $3.50 net.
Thompson, W. G.: Occupational Diseases, New York, D. Appleton Company, 1914, $6.
Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., $8.
Ligge: Lead Poisoning, New York, Longmans, Green & Co., $3.50.
Hansen: Dusty Trades, Bulletin 127, U. S. Bureau of Labor Statistics.
Studies in Vocational Diseases, 1, Schereschewsky, J. W.: The Health of Garment Workers; 2, Schereschewsky, J. W., and Tuck, D. H.: Hygienic Conditions of Illumination in Workshops of Women's Garment Industry, Public Health Bulletin 71, Washington Government Printing Office, 1915, 40 cents.

TIME ALLOTTED BY CZERNY TO READING

To the Editor:—The "Hygienic Testament" of the late Professor Czerny (Berlin Letter, The Journal, March 10, 1917, p. 791) is very interesting, but raises the question of accurate translation in several places. The lack of mention of *reading* is made more conspicuous by the large amount of time given to "art and lectures," namely, two hours. Perhaps the translator thought of the lectures given by the professor himself; but is not the word *Lectüre*, and should it not be translated "reading"?

X. Deutsch.

Answer.—The original word was *Lektüre,* and should, of course, have been translated as "reading."

NASAL OBSTRUCTION WITH RENAL INSUFFICIENCY AND ECLAMPSIA IN PREGNANCY

To the Editor:—Eight cases of nasal obstruction with renal insufficiency and eclampsia in pregnancy have occurred in the practices of myself and of a colleague at this place. All the patients have been mouth breathers. Is it not possible that the poor oxygenation of the blood is largely responsible? The success of the continuous oxygen treatment would suggest that if the system had been freely supplied with oxygen, the eclampsia would not have developed.

T. L. Thomson, M.D., Torrington, Conn.

ACTIVE PRINCIPLE OF LEECH SECRETION

To the Editor:—Please inform me what the active principle is in the secretion of the leech which prevents clotting.

M. G. Atkinson, M.D., Watertown, N. Y

Answer.—The active principle of the buccal secretion of the leech (herudin) appears to be a deutero-albumose. See *Chemisches Centralblatt,* 1903, p. 254.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

Colorado: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

Minnesota: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 26-28. Sec., Dr. J. A. B. Adcock, 325 E. High St., Jefferson City.

Montana: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

Rhode Island: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Utah: Salt Lake City, April 2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

A CHIROPRACTIC DOCTOR FACTORY

The so-called "American University" is an excellent example of the travesties on education which are the direct result of the inexcusable custom in most of our states of granting charters to "educational" or degree-granting institutions without first making inquiry regarding their ability or facilities for furnishing an education. Do the words "school," "academy," "college" and "university" really stand for educational institutions, or do they not?

So far as can be learned, the American University owns no college building, no laboratories, no dispensaries and no hospitals; nevertheless, it brazenly professes to prepare "doctors" to treat all classes of human ailments. Its only habitation thus far discovered is a small suite of rooms on the third floor of an old office building in Chicago. This building bears no sign to indicate that it is a university, and in the directory, high up on the wall, in the entrance to the building only a close search reveals the sign which indicates that the building houses so important a tenant! When the investigator wends his way to the third floor he discovers a door on the glass of which he reads:

"American University, 310-312. American College of Mechano-Therapy. F. S. Tinthoff, S. J. Tinthoff, W. L. LeBoy, M.D., E. Juhl, M.D."

Possibly the American College of Mechano-Therapy is another "department" of the "American University." At any rate, from reports it is quite evident that it is "a bird of the same feather."

Our present concern with the American University is in regard to its "department of chiropractic," which issues a pretentious announcement of sixty-four pages. This announcement sets forth such courses of instruction as it professes to give; contains many testimonials regarding the princely incomes being earned by chiropractors; shows a facsimile of its "beautiful diploma, handsomely lithographed," which is further described as having a "prepossessing appearance which will add to the professional dignity of any office," and contains numerous other catch phrases intended to attract the dollars from the credulous and unwary.

What use, indeed, would this institution have of buildings, laboratories or equipment, since it makes no pretense of giving a resident course? In fact, its announcement does not mention such a course, but lauds its "extension," or home study, course, by which chiropractic can be "more easily acquired than the other forms of healing."

Much stress is laid on the ease with which this home study course may be obtained. In fact, no preliminary education seems essential. Says the announcement: "You do not need a collegiate education to render you fit to study chiropractic. A common school education is all that is required." Even a common school education would not appear to be necessary for the course offered, and it would be a safe guess that no student was ever rejected for the lack of it. Says the catalogue: "It does not require the years of education needed in other lines"; but some "students complete the work in four months." Even then a student need not spend all his time in study, but can "pursue his ordinary occupation while studying the course."

The greatest activity of this "university" is in its mailing department, and it is evidently doing a land office business. Within three months' time one of its "prospects" received five voluminous communications, containing altogether forty-five enclosures, including announcements, testimonials, booklets, varicolored leaflets, etc. Extensive use is made of the system of "follow-up" letters containing the usual catchy subterfuges for separating dollars from the unwary, such as offers of courses costing $100, marked down to $68.75; allowing fees to be paid in instalments of $25, marked down to $12.75, or of $15, marked down to $8; offers of commissions for new students, and certificates offering free the first five lessons, if enrolment is sent in by a certain date.

The announcements abound with statements calling the attention of the reader to the possibilities of "financial success" if he but invests his money with this school; of "the rewards that are awaiting" his command; the possibilities of "successful results" and of "reaping a rich harvest"; the "opportunities for any chiropractor to earn from $1,200 to $12,000 per year"; that "chiropractic may be practiced with profit and success"; that it is "a most pleasant and profitable profession," etc.

There are also the usual lot of comments running down physicians and the practice of medicine; references to "noxious and poisonous drugs"; statements that "physicians are abandoning the old form for chiropractic," etc.

What, indeed, is the use of spending ten or eleven long years in high school, college, medical laboratories, dispensaries and hospitals, with the expense of thousands of dollars, which such a course entails, when in four months of home study, while one is "pursing his regular occupation," and for only "$100, marked down to $68.75," he can secure from this institution a "beautiful diploma, handsomely lithographed," which (he is led to believe) will make him eligible to treat all classes of human ailments and to "reap a rich harvest" by exacting large fees from his credulous patients!

Louisiana December Report

Dr. E. L. Leckert, secretary of the Louisiana State Board of Medical Examiners, reports the written examinatioon held at New Orleans, Nov. 30-Dec. 2, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 18, of whom 16 passed and 2 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Medical College of Alabama	(1905)	87.5
Tulane University of Louisiana	(1916)	85.2, 86.9, 87.6, 89.6, 92.3
Johns Hopkins University	(1914)	92.9
Meharry Medical College	(1916)	82.4
Memphis Hospital Medical College	(1911)	81.7
University of Tennessee	(1913) 83.6; (1914)	77
Vanderbilt University	(1914) 89.8; (1916)	88, 89.9, 90.1, 90.1.
FAILED		
Eclectic Medical Institute	(1879)	41.7
Meharry Medical College	(1916)	75.7*

* Conditioned in two subjects.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Atlanta Medical College	(1914) (1916)	Georgia
Tulane University of Louisiana	(1914)	California
University of Michigan Medical School	(1916)	Michigan
Vanderbilt University	(1915)	Arkansas

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 5 candidates were licensed through reciprocity, Jan. 2, 1917.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Illinois	(1915)	Illinois
Woman's Medical College of Pennsylvania	(1915)	New York
Meharry Medical College	(1894)	Kansas
Vanderbilt University	(1915)	Michigan
University of Virginia	(1906)	W. Virginia

Social Medicine, Medical Economics and Miscellany

EXPERT TESTIMONY*

J. H. LANDIS, M.D.
President, Cincinnati Academy of Medicine
CINCINNATI

Several weeks ago, ex-Judge Littleford of the Court of Common Pleas of Cincinnati tossed a verbal bomb into the medical camp. Its explosion did as much damage to the lawyers as it did to the doctors. Both professions and the general public were interested and, judging from numerous expressions from numerous people, anxious to see treatment of the case carried well beyond the stage of first aid to the injured. It may be well to quote the testimony as reported in the press, testimony which, to the best of my knowledge, has not been repudiated by Judge Littleford. The credibility of medical expert testimony was under question when the following statements are alleged to have been made:

> I knew there was nothing in court so absurd but you could get the best doctors to testify it was all right, provided they got enough money for it. For instance, I know there were doctors in the Thaw case who testified he was insane and some of the same doctors would come back and testify he was perfectly sane if they got money for it . . . That is my experience after thirty-three years of practice. The doctors are the worst to testify. All they want is the money. It is a question of who gets to the doctor first. They would prove anything on either side of the case—that has been my experience with them.

In answer to the question, "Well, you say the thing they are looking for is the fee," Judge Littleford replied:

> It is the only question with a doctor in a community, who gets there first with the money, provided you have the most. If you get there with ten dollars, he probably won't come; but if the other side gets there with fifty dollars, he will go to work and prove anything.

The statements quoted leave nothing to the imagination. The best doctors being for sale at prices ranging from ten to fifty dollars, it necessarily follows that, if the best doctors can be had for these prices, the worst ones will probably be found assembled in bunches marked with a selling price so low as to be a source of mortification to the entire profession.

What follows is not directed toward the legal and medical professions as a whole, but to the minority in both professions who are responsible for the contempt in which expert medical testimony is held. It is applicable to all varieties of expert testimony, for the rule of averages applies not only to medicine and law but to all varieties of business and occupation. If any one outside of these two professions believes that they have a corner on all the crooked experts in the world, all that is necessary to convince him of his error is for him to follow the court proceedings in cases calling for the admission of expert testimony of any kind.

Since the publication of Judge Littleford's testimony, a number of questions have been asked, practically all of them developing some different angle of the problem. The questions would lead one to infer that the professions of medicine and law are reeking with corruption, an inference which does a gross injustice to the great majority of the men in both professions. Charges of corruption are exceedingly easy to make and correspondingly difficult to prove. It is unusual to find a satisfied, unsuccessful litigant, and it is the unsuccessful litigant who is most apt to claim that corrupt testimony has brought about an adverse verdict.

One of the most difficult things to prove is the guilt of a physician charged with a criminal operation, and yet practically every physician believes that this crime is of common occurrence and that the criminals are known.

The sweeping charge that doctors are influenced in the character of the testimony given by the fee paid may or may not be true. Coming from "an officer of the court," a mere layman may be pardoned for wondering why the information on which the charge is based is not presented to a grand jury.

I have no knowledge of corruption in either profession, and by that is meant *legal* proof of corruption. I do know that the value of expert testimony has been seriously questioned and that newspaper articles and the spoken word have all but destroyed public confidence in expert testimony of all kinds.

The answers to the questions are based on what I have heard and read (hearsay evidence), which is not competent testimony. My reasons for bringing the subject to the attention of members of the American Medical Association is a desire to deny that all doctors and lawyers are bad men and a hope that changes in the rules governing the admission of expert testimony of all kinds will remove any temptation which may exist to either buy or sell this commodity.

The question has been asked, "What conduct or lack of ethics causes most criticism of the medical profession and expert medical testimony?"

The entire medical profession is criticized because of a very small minority of members who, if they had not become physicians, would have followed a natural bent for blackmail, counterfeiting, burglary or highway robbery. Having been deflected from this natural tendency, they find expression in more refined and less risky channels of activity. One of these is in furnishing corrupt expert testimony.

Hypothetic questions are constructed for the specific purpose of securing the desired answer. They should bring answers which are in practical agreement with opinions from reputable practitioners of the specialty involved. When the answers are in violent opposition, the public draws one of two conclusions: the doctors in the case know nothing at all concerning the conditions under question, or their answers are influenced by the fee paid. Some people are old-fashioned enough to call this perjury. Either of the foregoing conclusions penalizes the entire profession.

Another question is, "To what do you ascribe the greatest cause for public disrespect for the lawyers?"

The entire legal profession suffers because of its small minority of ambulance chasers, blackmailers and all-round crooks. In some communities the ambulance chaser is looked on as a bird of evil omen, for he carries the first news of death or injury at the same time that he offers his services in a prospective suit for damages. When two or more of these gentlemen are seen boiling into a street in a hot foot race or breaking traffic regulations on bicycles or in automobiles, the supreme contempt with which they look on anything remotely resembling a fee becomes manifest. Their ability to secure advance information speaks volumes for the system employed. Failure to use an aeroplane, thereby cutting off additional precious seconds, can only be ascribed to inability to qualify for a pilot's license.

The browbeating and blackguarding of men and women on the witness stand is the exclusive privilege of the legal profession. As "officers of the court" they are safe in a line of conduct which, if followed on the street, would quickly develop its own antidote. Highway robbery can be carried out with a fair degree of good form, or it can be made vulgar and brutal by unnecessary blackjacking and brass knuckling of the victim. In court the "frisking" of a victim can be done in such a genteel manner that the "friskee" goes away feeling almost as pleased as if he had been the lion at some social function. On the other hand, he may be put through third degree methods that cause him to loathe and hate the whole legal profession. Claude Duval methods are preferred by the victim, who naturally dislikes being beaten to a pulp after having been separated not only from his coat, but from his cloak also.

The careful exclusion of testimony on technical grounds, testimony which appeals to the average layman as furnishing the key to the entire situation, breeds a feeling of contempt for court proceedings. Rational human beings, bound and helpless slaves in the grip of precedent, fail to arouse any enthusiasm on the part of the average man over the proposition that they represent the only *exact science.*

The failure of the presiding judge to protect a witness from vulgar abuse and vilification causes him to have scant respect for a court that emerges from a trial dripping with the filth of the streets, alleys, gutters and sewers through which it has been dragged by an unscrupulous attorney.

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* Inaugural address, read before the Cincinnati Academy of Medicine, Jan. 15, 1916.

A third question concerns the faith placed in expert testimony by judges and jurymen. As a rule the judge is well educated and has had a wide experience; the combination enables him to place a fair valuation on the testimony. On the other hand, the jurymen are the judges of the facts and the evidence. In order to be eligible to serve on a jury, they must at the same time practically establish eligibility for admission to a home for the feebleminded. The "easy, extemporaneous liar," one whose fabrications have that rare quality, spontaneity, gets their vote.

"Which American professional household needs cleaning the worst, law or medicine?"

Both would be benefited by a thorough course of dry cleaning. Extremists have the impression that doctors and lawyers are bad men, that all bad men are either doctors or lawyers, and that a clean-up of undesirables in both professions would leave society clean and pure and wholesome. This assumption is an error. Business has its pirates; a clergyman is occasionally found deviating from the straight and narrow path; bankers have been known to default; the honest farmer is sometimes found to be a past master in the gold brick industry, and once in a long time—say once in 200 years—the newspaper profession furnishes a 100 per cent. candidate for first honors at a necktie party.

Both professions are at fault. The unscrupulous attorney needs false testimony to make a case; the unscrupulous doctor has it for sale. They enter into an unholy alliance to "bleed the victim white." It is a parallel case with the Adam and Eve scandal in which Eve plays the part of an attorney. (Or would it be fairer to Eve to make the serpent the attorney in that case?) At any rate, the demand for perjured testimony has its origin in the attorney, and the doctor furnishes the supply. The major portion of the responsibility certainly should be charged to the legal profession, because its members are "officers of the court." The court may be compared to the nest, the attorneys, the birds inhabiting it; "it's a dirty bird that fouls its nest."

Medicine and law are great professions. No more elevating spectacle can be conceived than an attorney fighting injustice or a physician freely risking his life in a battle against deadly epidemics. Both professions have made enormous contributions to the progress and happiness of the world. Both of them contain a majority of good men and a minority of bad ones. When the bad men in both begin to hunt in pairs, the good ones suffer in the public esteem. The good men in both professions have high standards of ethics, but they are subjected to unfair competition by men who regard subscribing to any standard of ethics as an evidence of weakness. The majority of both professions are tainted by enforced association with the small minority.

Can anything be done to relieve the conditions which, many people believe, make possible the purchase of perjured testimony?

Both professions have shown a disposition to clean house. Spasmodic attempts, resembling attacks of petit mal, have been made in the past without anything in particular being accomplished. Is it not possible for the overwhelming majority of both professions to transform the spasmodic attempts at reform, resembling petit mal, into attacks of grand mal or, if necessary into one of status epilepticus until reform has actually been accomplished?

Any attempt at reform will arouse violent opposition, for the guilty members of all professions will offer strenuous objections to being separated from their meal tickets. Vivid word pictures of an outraged constitution and Liberty dying in the midst of the most horrible agony will freight the atmosphere, while the flag will be pictured with all of its stars shot away. To this may be added the deep damnation implied when any attempt at reform is denounced as "un-American."

The selection of experts by the presiding judge, their fees to be assessed as a part of the court costs, would place the responsibility of selecting honest experts on the presiding judge. This plan would destroy the market place in which perjured testimony is for sale, permit the honest expert witness to come into his own, and wipe out the intellectual red light district established by unscrupulous members of both professions. Experts would become in fact, as well as in theory, advisors of the court, hired to clarify, not to confuse, issues. Court machinery would cease to be clogged by cases that many believe to be pure blackmail. Justice could discard the bandage now blinding her eyes and look on court proceedings unashamed.

It is suggested that medical societies over the country formally declare their attitude toward this problem by inviting the bar associations to cooperate with them in an effort to bring about changes in the rules governing the admission of expert testimony, which will eliminate, or at least reduce to a minimum, the temptation to sell corrupt expert testimony of any kind.

A BROAD CONCEPTION OF THE DIAGNOSTIC CLINIC

ROBERT POLLOCK, M.D.
San Diego, Calif.

Entrusted with the publicity of the San Diego Diagnostic Group Clinic, which has just opened its doors, I had formulated a brief item for the news columns of The Journal, when it occured to me that the San Diego enterprise possesses enough elements that are still untried to merit its being termed an original movement, and as such it will be of interest to many readers of The Journal. The features that are distinctly new may be briefly summarized thus: It is conducted with hospital facilities sufficient to complete diagnoses and yet with no hospital in which to carry on treatment. It does no charity work, nor does it cater to the man of means. It gives opportunity to every specialist, in the broadest sense of the word, in the community to express himself through its service. It discloses a profession willing to serve freely without pay a class of patients who are in no sense charity patients.

This clinic, which was opened to the public, Saturday, Feb. 17, 1917, is the initial expression of an earnest desire on the part of a local philanthropist to help the man of modest income ($100 per month or less). Mr. E. W. Scripps, the owner of valuable newspaper properties in San Diego and many other American cities, proposes to have this class furnished with careful group diagnosis, at a price within the means of the working man, Mr. Scripps paying all necessary deficits. To do this he has furnished and equipped a substantial building in an easily accessible residence neighborhood, and placed it through a board of five trustees, at the disposal of the local medical profession to plan and work out the details of a diagnostic clinic. The medical men representing the various special lines of work met and entrusted the working out of the details to an executive committee of five of their number. The staff as at present constituted consists of fifty physicians divided among the seventeen special lines of diagnosis recognized, one from each specialty acting at a time and together constituting the diagnostic group serving a month at a time.

Patients are accepted for diagnosis only and must be referred by a registered physician, to whom, after a diagnosis is completed, the patient is referred back. The referring physician is invited to be present at the discussion of his patient's case, and is furnished with the diagnosis and general suggestions for treatment. The referring physician is protected by rules which prohibit any member of the diagnostic staff accepting patients who have been examined by it within ninety days, unless requested to do so by the patient's physician.

The patient is received at the clinic by the nurse-superintendent, his history is taken by a member of the staff, and he is then put to bed and the various specialists on duty called to examine him. It is figured that from two to three days will be required to make a complete examination and discuss the findings in the average case. Each day at noon the group on service lunch at the clinic and discuss their findings, arriving at a consensus of opinion without being handicapped by the ethics of ordinary consultation, the presence of the family of the patient, or any excess courtesy to diagnoses already made. It is a threshing out of the truth as the members of the group see it and the reaching of diagnosis by weighing the various clinical data presented.

San Diego is a city of from 90,000 to 100,000 people, besides a considerable floating population. It is blessed with an ideal climate which draws people from every quarter of the country, and many of these present intricate problems for the diagnostician. The county medical society contains 125 of the total number of registered physicians. From this society have been selected the representative men of each specialty, recognition being given to all who care to serve. A little study of the division of work will suggest that few patients require the services of all members of the group to complete a diagnosis, and yet each is requested at least to consider the history of every case. A few statements are in order in answer to the question, often raised, why medical specialists should serve without pay on a diagnostic clinic to which all patients are asked to pay.

1. The fees are so modest that for a time the relation between receipts and overhead expense is difficult to determine.
2. The patients represent families with a total monthly income not exceeding $100. No others are received.
3. By cutting down the amount paid out for consultations and laboratory work, the patient will be enabled to pay his attending physician more nearly his proper fees.
4. Meanwhile it is not difficult to see that the staff should gain in many ways, through the broadening influence on its members of such scrutiny and comparison of one another's work.
5. Eventually, if the experiment proves a success, the clinic will probably be opened to all social classes.

A list of the charges, as at present arranged, is here appended.

FEES

Members of families having a total monthly income of $90 to $100..	$25
Members of families having a total monthly income of 80 to 90..	20
Members of families having a total monthly income of 70 to 80..	15
Members of families having a total income under $70.............	10
Single patients with monthly incomes of from $70 to $80..........	25
Single patients with monthly incomes of from 60 to 70..........	20
Single patients with monthly incomes under $60..................	15

We have here a diagnostic clinic, affiliated in no way with any of the local hospitals. It is served, broadly speaking, by the specialists drawn from the ranks of the county medical society, although not necessarily restricted to them. It aims to give opportunity for service to any qualified specialist so desiring. It accepts as patients only those of modest means, neither the rich nor the very poor being received. Its staff, for the present at least, serves without pay.

1000 Watts Building.

Society Proceedings

COMING MEETINGS

Alabama State Medical Association, Montgomery, April 17-20.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6 7.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Urological Association, Chicago, April 2-4.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
Tennessee State Medical Association, Nashville, April 3-5.
Texas State Medical Association, Dallas, May 8-10.

Medicolegal

Difference Between Actions on Contract for Professional and Other Services

(*Sturgeon vs. Pioneer Life Ins. Co.* (*Mo.*), *186 S. W. R. 1192*)

The Kansas City Court of Appeals reverses a judgment obtained by the plaintiff, a physician who sued to recover damages for breach of an alleged contract of employment, because, while he alleged that he was employed by the defendant as its medical examiner, he was permitted, without amending his petition, to prove and recover on a different cause of action, namely, that he was employed, not as a medical examiner, but as a medical director, the duties of which latter office were purely executive and did not include the performance of professional services, so that it was not necessary that the incumbent should be a licensed physician, in Missouri, to which state the plaintiff had come from another to take the position. The court says that it was not necessary for it to decide in this case whether a Missouri life insurance company may lawfully employ a layman to perform the duties of medical director. It was enough here that, confronted with the charge of breaching a contract for professional services, the defendant could not properly interpose a plea of mitigation of damages, but such a plea would have been a defense to the action in the form of one for nonprofessional services, which plea, under the circumstances, the defendant was not allowed to make. An action on a contract for professional services differs from one on a contract for nonprofessional services, especially in rules pertaining to the measure of damages. If, as the plaintiff insisted, and as his proof tended to show, he was hired, not as a physician, but to perform the functions of an executive officer of an insurance company, the trial court erred in instructing the jury that his recovery could not be diminished by his earnings in other employments; but if he was hired, as he alleged in his petition, to render professional services, he could invoke the rule, followed in the instructions, that "there can be no mitigation where the plaintiff is a professional man and is to be paid a fixed price for certain work."

Student Practice Provision Versus Students of Osteopathy—"Eyelet Dilation"

(*State vs. Collins* (*Ia.*), *159 N. W. R. 604*)

The Supreme Court of Iowa affirms a judgment of conviction of the defendant of practicing osteopathy without first having obtained and filed with the county recorder a certificate of the state board of medical examiners authorizing him to practice. The court says that it agrees with the defendant that statutes regulating the practice of medicine, and providing penalties for failure to comply with conditions imposed on such practice, include all who practice the art of healing, whatever the therapeutic agency employed, and that, therefore, one practicing osteopathy is, at least for the purposes of such statutes, practicing medicine. The court also agrees, for the sake of the argument, with the contention that statutes for the purpose of enforcing conditions on the right to practice medicine are held by a number of Iowa cases cited to include almost any profession to heal, or action for the purpose of healing. But there was an attempt to present a point which it might be conceded that mentioned cases from different jurisdictions have not dealt with. The argument was this: Practicing osteopathy is practicing medicine. Section 2579, Iowa Code of 1897, exempts from the penalties of the statute on which the indictment in this case rested "students of medicine" who have stated qualifications (which the defendant had), if they prescribe "under the supervision of preceptors," or give gratuitous services "in case of emergency." It was said that if the defendant was denied this exemption, there was an arbitrary and, therefore, void discrimination between osteopaths whom the law regards as practicing medicine, and others who are also practicing medicine. Axiomatic law refutes this contention. Courts avoid invalidating statutes unless the question whether they are valid arises for, and demands, decision. In the instant case the defendant insisted throughout that the treatments given by him were not an application of the science of osteopathy, but were the application of a distinct system which he called "eyelet dilation." The statute exempts neither students nor practitioners of "eyelet dilation," and none but "students of medicine, surgery or obstetrics," and there was no claim that said dilation was either of these three. It will be time enough for the court to pass on whether a statute unduly discriminates against practitioners of osteopathy when some one presents the point who does not deny that he practices osteopathy. Again, while the defendant may have given gratuitous treatments, it did not appear that they involved a "case of emergency." And if that be passed, it was still undisputed that he gave many treatments in consideration of $2 per treatment. Finally, he was not a student at all, but a practitioner. If, for the sake of argument, he be treated as a student, the evidence showed clearly that he was not "a student, . . . prescribing under the supervision of a preceptor," although certain evidence presented the relation of consultants on occasion and occasional advice and direction. It was true that the defendant testified he claimed osteopaths would not treat a certain patient as the evidence showed he had treated her; that he claimed osteopaths did not use a pressure on the nerves to cure disease; that he was using "eyelet dilation" and not osteopathy; that his system termed "eyelet dilation" was entirely separate and distinct from "orthodox osteopathy." But the jury had before it what the defendant's treatments in fact were, and could find from that description alone that, though the treatments may not have been "orthodox osteopathy," yet it was an application of osteopathic science. The defendant himself described osteopathic treatment to be the doing of things which the evidence showed his treatments consisted of, and that both his treatments and osteopathy aimed to induce a flow of blood to the affected part. The court thinks that, while the jury might have found that the treatments were not osteopathic, it cannot disturb the findings of the jury that they were an application of the science of osteopathy.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

March XIII, No. 3

1 *Acidosis in Children, with Reference to Pathologic Anatomy. E. Lackner and H. Gauss, Chicago.—p. 209.
2 *Acidosis with Severe Diarrhea. O. M. Schloss and R. E. Stetson, New York.—p. 218.
3 *Familial Icterus of Newborn Infants. I. A. Abt, Chicago.—p. 231.
4 *Calcium Metabolism in Case of Hemophilia. C. H. Laws and D. M. Cowie, Ann Arbor, Mich.—p. 236.
5 Cerebrospinal Fluid in Poliomyelitis. P. C. Jeans and M. R. Johnston, St. Louis.—p. 239.
6 *Schick Test in Poliomyelitis, Scarlet Fever, Measles and in Normal Children. A. Zingher, New York.—p. 247.
7 Case of Diaphragmatic Hernia in an Infant. T. C. McCleave, Oakland, Calif.—p. 252.
8 Résumé of Work on Tuberculosis in Children for 1916. M. Michael, Chicago.—p. 256.

1. **Acidosis in Children.**—Lackner and Gauss record the clinical course and necropsy in a case which they believe to be one of acidosis, and an attempt is made to correlate the anatomic alterations with the clinical diagnosis. The anatomic diagnosis was: Lipemia; lipuria; anasarca; marked fatty changes in the liver; marked fatty degeneration of the kidneys; cloudy swelling of the myocardium; passive congestion of the lungs and small accessory spleen. The authors conclude as follows: There occurs in acidosis, lipemia from the failure of the body tissues to utilize the fats in the blood. Lipuria, an outward expression of lipemia, also resulting from the excretion of fat in the waste products of the kidneys as fatty casts. Fatty infiltration of the liver, which is a physiologic accumulation of fat from the blood. Fatty degeneration of the kidneys resulting from acid intoxication. Anasarca resulting from impaired internal and external respiration.

2. **Acidosis with Diarrhea.**—Investigations were made by Schloss and Stetson on more than 200 infants. These consisted in the determination of the carbon dioxid in the blood, the carbon dioxid in the alveolar air, the carbon dioxid combining power of blood plasma, the tolerance to sodium bicarbonate, the presence of acetone bodies in the urine and the ammonia coefficient of the urine. Infants suffering from severe diarrhea with toxic symptoms often show the following signs of acidosis: 1, decrease of the carbon dioxid of the blood and alveolar air; 2, decreased carbon dioxid combining power of the blood plasma; 3, high ammonia coefficient in the urine; 4, increased tolerance to sodium bicarbonate; 5, improvement of the symptoms after administration of sodium bicarbonate. These signs are evident in some cases of diarrhea before the typical symptoms of intoxication have developed, and serve as a warning and therapeutic indication. If an infant suffering from severe diarrhea has hyperpnea, the diagnosis of acidosis is almost certain. If hyperpnea is not observed the diagnosis of acidosis must rest on laboratory evidence. Thorough and carefully controlled treatment by sodium bicarbonate usually causes disappearance of the acidosis, but despite this, the infants frequently die from a severe form of malnutrition.

3. **Familial Icterus in Infants.**—Abt relates the occurrence of a rare disease in new-born children, characterized by progressive icterus occurring in successive pregnancies and of unknown origin. The disease nearly always terminates fatally, though one of his patients recovered after a most serious attack and with the most alarming symptoms.

4. **Calcium Metabolism in Case of Hemophilia.**—The calcium content of the blood in the case of hemophilia studied by Laws and Cowie is the same as that obtained under normal conditions. The calcium content of the blood increased perceptibly during the calcium feeding period. The coagulation time of the blood was lengthened during the calcium feeding period. The calcium content of the food (milk) was slightly greater in their series than in the usually reported analyses.

6. **Schick Test in Normal Children.**—Zingher holds that the Schick test is positive between 1 and 4 years of age in about 32 per cent. of normal children, in a slightly larger proportion of cases of measles, in twice as many cases of scarlet fever and nearly three times as many cases of poliomyelitis. Susceptibility to one of the less contagious diseases, like poliomyelitis, indicates that the child is more apt to be susceptible to other contagious and infectious diseases. Natural immunity reveals interesting problems, which can be partly solved by a study with the Schick test in diphtheria immunity. A uniform technic of making the test, standard solutions of toxin, a uniform interpretation of the test, and a large series of cases are essential in any attempt at making important deductions from the results obtained with the Schick reaction.

American Journal of Medical Sciences, Philadelphia

March, CLIII, No. 3

9 *Rôle of Fat in Diabetes. F. M. Allen, New York.—p. 313.
10 *Endothelioma of Right Bronchus Removed by *Peroral Bronchoscopy*. C. Jackson, Pittsburgh.—p. 371.
11 *Spelter Chills. D. Riesman and R. S. Boles, Philadelphia.—p. 376.
12 Unilateral Renal Hypoplasia and Dysplasia Due to Defective Arteriogenesis; Relation to So-Called Hypogenetic Nephritis. W. M. L. Coplin, Philadelphia.—p. 381.
13 *Rarity of Conjugal Phthisis. M. Fishberg, New York.—p. 395.
14 *Status of Diphtheroids with Special Reference to *Hodgkin's Disease*. W. F. Cunningham, New York.—p. 406.
15 Some Physiologic Effects of Various Atmospheric Conditions. J. A. Miller, New York.—p. 412.
16 Case of Extreme Acidosis Occurring in Man with Bilateral Cystic Kidneys. J. H. Means and O. F. Rogers, Jr., Boston.—p. 420.
17 Invasive Quality of Streptococci in Living Animal. W. L. Holman, Pittsburgh.—p. 427.

9. **Rôle of Fat in Diabetes.**—The most important fact shown by Allen's experiments is that the appearance of spontaneous downward progress observed in human patients can be exactly imitated in dogs. It is possible that further factors, notably occasional infections, may be operative in at least some human cases. It is not positive that the undernourished dogs will be able to live indefinitely, but it is conclusively demonstrated that the attempt at high nutrition, even with fat, produces in these dogs an appearance of spontaneous aggravation of conditions as striking as anything witnessed in human

patients, and that this result can be prevented at least for periods of years by limiting the total caloric intake and the body mass to correspond to the assimilative function. The experience with diabetic dogs warns unmistakably against efforts to maintain patients on a luxus level of diet or weight. The standard should approach that of Chittenden rather than that of Voit. Restriction of single foods, as carbohydrate or protein, suppresses symptoms temporarily, but lightening the total load on the weakened assimilative function is the only present means by which it may be hoped actually to halt the diabetic process.

10. **Endothelioma of Bronchus.**—Jackson claims that diagnostic bronchoscopy is indicated in cases of monolateral "asthma," bronchitis, bronchial obstruction, and in cases of tuberculosis in which persistent search fails to show tubercle bacilli. His case proved to be one of endobronchial tumor. The tumor was removed under local anesthesia. Jackson says that this is the only recorded case of apparent cure of an endothelial endobronchial tumor by peroral bronchoscopy, and only the second endoscopic removal of any form of malignant growth from a bronchus.

11. **Spelter Chills.**—"Spelter chills" is the name given by Riesman and Boles to a condition heretofore described under such varying terms as brass-founders' ague, brass chills, zinc chills, smelter shakes, "Giesfieber" or "Staubfieber," and "fièvre des fondeurs." The authors believe the condition results from the inhalation and ingestion of the fumes and flakes of zinc oxid arising from the melting and volatilizing of spelter, which is the commercial name for zinc in its impure state. The first thing complained of is a creepy, chilly sensation up and down the spine which gradually extends throughout the entire body. It may continue as a mere chilliness, but more often develops into a genuine rigor which lasts for from one-half hour to an hour or even from two to three hours. At its height, cramps and pains in the limbs are apt to occur; abdominal pain is infrequent, except as it may follow the ingestion of cold drinks. The pulse is increased in frequency and there is a slight elevation of temperature. Preceding the chill there is a dry, scratchy sensation in the throat, a sticking, pricking feeling in the tongue, oppression in the chest, and an irritating cough, usually unproductive. Actual dyspnea is rare. There is a feeling of prostration and of nausea which frequently eventuates in severe vomiting. Diarrhea is common. As the attack subsides the patient, quite exhausted, breaks out into copious perspiration and soon falls into a deep sleep. A temporary loathing for food and an unpleasant metallic taste in the mouth are present on awakening and last a little while. The attacks do not often incapacitate the workers. The authors discuss this condition fully.

13. **Rarity of Conjugal Phthisis.**—In an examination of 170 married couples in which one of the consorts was tuberculous, and who lived under conditions favoring transmission of the disease, in poverty and want and under deleterious hygienic and sanitary surroundings, Fishberg found only five, or 2.9 per cent., in which both the husband and wife were affected with the disease.

14. **Diphtheroids and Hodgkin's Disease.**—Tuberculous glands, glands from cases of subleukemic lymphadenosis, Hodgkin's disease, a supraclavicular gland from a case of large round cell sarcoma, and primary mediastinal glands were examined by Cunningham and organisms were found which, he says, may be placed in the diphtheroid group, and only on morphologic grounds was he able to say that many of them are of different strains. The organisms which were isolated from glands of Hodgkin's disease, however, are very similar if not identical with those from the tuberculous glands. In some instances the diphtheroids were primarily associated with cocci which later overgrew them. Cunningham points out that it is reasonable to suppose that glands draining such places as the mouth, throat and tonsils should harbor such organisms as are commonly found in these portals. With the evidence at hand, however, the occurrence of them in the laboratory, in blood cultures (appearing rather late), in the heart's blood at the morgue, in ascitic fluid, and in a series of gland cultures of questionable technic, and not in a series where technic is definitely controlled, leads him to believe that we are dealing with organisms whose natural habitat is the laboratory. He does not believe that the organism heretofore described by various other workers bears any relation to the cause of Hodgkin's disease.

Archives of Pediatrics, New York

February, XXXIV, No. 2

18 *Coagulation of Cow's Milk in Human Stomach. J. Brennemann, Chicago.—p. 81.
19 *Immediate Tonsillectomy in Incipient Acute Endocarditis of Tonsillar Origin. E. C. Fleischner, San Francisco.—p. 118.
20 Elucidation of Some Arrhythmias of Heart in Children by Means of Electrocardiograph. R. H. Halsey, New York.—p. 128.
21 Transmission of Bovine Tuberculosis to Human Beings. M. P. Ravenel, Columbia, Mo.—p. 137.
22 Scarlet Fever and Measles Occurring Simultaneously in Same Individual, Other Children of Family Acquiring Measles Only. D. J. M. Miller, Atlantic City, N. J.—p. 139.
23 History of Pediatrics in New York. A. Jacobi, New York.—p. 144.

18. **Coagulation of Cow's Milk in Stomach.**—Seventy-four experiments are reported in detail by Brennemann. He found that cow's milk coagulates in the human stomach within a few minutes. The small curds formed at first, increase in size, for about two hours, by coalescing with their neighbors, after which they decrease because of the peripheral digestive action of the gastric juice, but are still present after five hours. The curds of raw milk are very large and hard, and those of boiled milk small and soft; those of pasteurized milk between these, but almost like those of raw milk; that is, raw milk is a very solid food—boiled milk a semiliquid food. The less the fat in the milk the harder and larger the curd, the more the fat, the smaller and softer the curd. The greater the amount of fat the longer the stay in the stomach, and the slower the digestion. Milk taken very slowly forms a larger curd than when taken rapidly. The greater the dilution with water the finer, flakier and more porous the curd. Alkalies and sodium salts very greatly inhibit coagulation—even stop it completely if in sufficient amounts. Precoagulated milk, such as buttermilk, pegnin milk or eiweissmilch, show very little tendency to recoagulation. Dried and condensed milks, as a rule, form a minimum curd. Starchy decoctions, such as barley water, have a very decided influence in lessening the size of the curd; much more so than simple watery dilution. Soluble carbohydrates, such as dextrins and sugars (milk, cane and malt) have apparently no appreciable influence on the curd.

19. **Immediate Tonsillectomy in Acute Endocarditis.**—Cases of acute endocarditis occurring in children in whom there has previously been no cardiac disease are reported by Fleischner. The type of acute endocardial inflammation to which special attention is called is that in which the endocarditis develops in the course of an acute, or rather subacute, inflammation of the tonsils. A tonsillectomy was done in each case.

Boston Medical and Surgical Journal

March 1, CLXXVI, No. 9

24 Treatment of Pneumonia. E. A. Bates, Springfield.—p. 293.
25 Intestinal Toxemia and Sequelae. W. E. Preble, Boston.—p. 296.
26 Trench Foot. H. M. Frost, Boston.—p. 301.
27 Ileostomy for Ileus and General Peritonitis. J. W. Lane, Boston.—p. 304.
28 "Constitutional" vs. "Local" Signs and Symptoms in Diagnosis of Early Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.—p. 307.
29 Morphin-Atropin, Pituitary Extract and Ether in Obstetrics. J. F. Martin, Boston.—p. 310.
30 *Successful Use of Internal Splints in Septic Compound Fracture. P. H. Leavitt, Boston.—p. 311.

30. **Use of Internal Splints in Septic Compound Fracture.**—A case is reported by Leavitt in order to register the successful use of a bone plate in a septic compound fracture of the lower leg, the value of constant irrigation, and the subsequent use of direct sunlight. The patient sustained a compound fracture of the tibia at about its middle, a fractured fibula and fractured astragalus. The fracture was treated conservatively; that is, the skin cleaned and the edges of the wound cauterized. One cubic centimeter of 2 per cent. iodin was injected into the wound, and pillow and side splints applied.

Sepsis occurred, since the fracture was transverse and muscle pull made it impossible to hold the ends in apposition. Since after open reduction a complete plaster, even if bivalved, would not allow a careful dressing of the now septic fracture, with the large area of denuded skin, it was decided that a bone plate would be the best means of approximating the ends. A bone plate was applied and screw holes were drilled diagonally down to the point of fracture in order to insure drainage of the septic material between the approximated edges of the bone. At the end of twenty-seven days from application, the plate became loosened on account of sepsis in the screw holes; it was removed and a Parham band applied. There was at this time, about 2 by 1 inches of tibia exposed, and 3 by 4 inches of surrounding muscle. Exposure to direct sunlight was then started and kept up for six weeks. Nine weeks after operation a large sequestrum was removed, and the skin area healed over more rapidly without the aid of grafts.

Bulletin of Johns Hopkins Hospital, Baltimore

March, XXVIII, No. 313

31 *Transfusion of Blood: History, Methods, Dangers, Preliminary Tests, Present Status. R. D. McClure, Detroit, and G. R. Dunn, Baltimore.—p. 99.
32 *Aleukocythemic Leukemia. Acute Myeloblastic Leukemia. Chloroma (?). Chronic Lymphatic Leukemia. J. T. King, Jr., Baltimore.—p. 114.
33 *Possibility of Developing an Experimental Chemotherapy of Tuberculosis. P. A. Lewis, Philadelphia.—p. 120.

31. **Transfusion of Blood.**—One hundred and fifty transfusions have been performed by McClure and Dunn. These included the following cases: pernicious anemia, 17 cases; secondary anemia, 19 cases; hemophilia and shock, each 2 cases; hemorrhage, 6 cases; leukemia, 5 cases, and 39 other cases, such as intoxications, septicemia, dysentery, typhoid, other infections, purpura hemorrhagica, benzol poisoning and tumors (carcinoma). A severe reaction occurred in 20 cases; a slight reaction, in 25 cases; a chill in 15 cases; temperature over 101 F. in 34 cases; hemolysis in 8 cases. Results: life saving, 15 cases; beneficial, 63 cases; no benefit, 56 cases and harmful, 16 cases. One death was due to the transfusion as an immediate cause, owing to the improper matching of the blood.

32. **Aleukocythemic Leukemia.**—Three cases of leukemia of the aleukocythemic variety are reported on by King. In one of them, an acute myeloblastic leukemia, so far as is known these was never a real leukocytosis; in the second, a case of chloroma, there was a history of a leukocytosis, but none was found in counts made several months apart; and in the third case, one of chronic aleukocythemic lymphatic leukemia, there was no leukocytosis prior to the terminal stage. In this case there was a high mononuclear percentage. The blood picture was changed, however, from that of an aleukocythemic, to that of a typical lymphatic, leukemia during an acute bronchitis and an acute bacillary dysentery.

33. **Possibility of Developing an Experimental Chemotherapy of Tuberculosis.**—Following the observation that the tuberculous tissue in the living animal was easily penetrated by trypan red, many other dyes of the same general class, chemically speaking, were tested by Lewis for their reaction in this particular. A considerable number were found which could become concentrated in the diseased tissue to a greater or less extent. Many of these had never been accurately described from a chemical point of view; others presented difficulties in manufacture. After much consideration, a dye known to the trade as Niagara blue 2B (benzidin plus 2 H. Acid) was chosen as the starting point of a second attempt to construct a series of iodin and phenol compounds. The disinfectant action of various substances for the tubercle bacillus has also been studied. The procedure by which the results reported were obtained was to determine the least concentration of the substance in glycerin bouillon which would definitely inhibit the growth of the tubercle bacillus. For comparison, the typhoid bacillus was used. It was found that the typhoid bacillus is much more resistant than the tubercle bacillus; in other words, the susceptibility of the latter is greater. The results were as follows: Phenol: Typhoid 1/800 (concentration) = tubercle bacillus 1/2,000, or the susceptibility of the tubercle bacillus = 2½. Resorcin: Typhoid 1/4,000 = tubercle bacillus 1/100,000 or susceptibility of tubercle bacillus = 25. Benzidin and Resorcin combination: Typhoid 1/400 = tubercle bacillus 1/100,000 or susceptibility of tubercle bacillus = 250. Acridin orange: Typhoid 1/4,000 = tubercle bacillus 1/400,000 or susceptibility of tubercle bacillus = 100. Heliotrope: Typhoid 1/1,000 = tubercle bacillus 1/400,000 or susceptibility of tubercle bacillus = 400. Of the anilin dyes, specific activity is manifested quite generally by those related to safranin and to acridin, and in greater or less degree by many of the azo-dyes made with benzidin as the basic constituent. On the whole, the number of substances showing this property is large rather than small. Although in the studies previously made with other bacteria, the concentration required to inhibit the growth of the culture is roughly proportional to the higher concentration required to kill the microorganism in a short period of time, with the tubercle bacillus this is not the case. So far no substance has been discovered by which the tubercle bacillus is killed more readily than is the typhoid bacillus. The ability to inhibit the growth of the tubercle bacillus in cultures is not dependent on high disinfectant activity in general. It is an attribute of a number of substances which are relatively nontoxic for higher animals.

Journal-Lancet, Minneapolis

March 1, XXXVII, No. 5

34 Ureteral Stone; Report of Case. O. Owre, Minneapolis.—p. 129.
35 *Intracanalicular Papilloma of Breast. E. S. Judd, Rochester, Minn.—p. 141.
36 Dosage and Therapy in Tooth Extraction. F. B. Kremer, Minneapolis.—p. 144.
37 Treatment of Carcinoma of Uterus. T. Bratrud, Warren.—p. 146.

35. **Intracanalicular Papilloma of Breast.**—Among thirty-two cases of papillomas of the breast, Judd found the following pathologic classification: intracystic papillomas, 8; intracystic carcinomatous papillomas, 8; intracanalicular papillomas, 10; carcinomatous intracanalicular papillomas, 3; intra-acinar papilloma, 1; intracanalicular papilloma associated with a carcinoma of the breast, 2. In this series, carcinoma was present in 11; in 3 other cases the pathologist believed the condition was carcinomatous, but he was unable to make a definite diagnosis. The characteristic symptom in these 32 cases was bleeding or a serohemorrhagic discharge from the nipple. In a few instances there were palpable tumors, but in all of these the growth was produced by chronic mastitis or by cystadenoma, and in no instance was there a papilloma in the duct large enough to be palpated, except in one case, in which it extruded from the nipple.

Journal of Experimental Medicine, Baltimore

March, XXV, No. 3

38 *Drug Fastness of Spirochetes to Arsenic, Mercurial and Iodid Compounds in Vitro. S. Akatsu and H. Noguchi, New York.—p. 349.
39 *Resistance of Spirochetes to Action of Hexamethylentetramin Derivatives and Mercurial and Arsenic Compounds. S. Akatsu, New York.—p. 363.
40 Influence of Carbohydrates on Cultivation of Spirochetes. S. Akatsu, New York.—p. 375.
41 *Absorption of Fat in Partially, and in Completely Depancreatized Dogs. C. W. McClure, B. Vincent and J. H. Pratt, Boston.—p. 381.
42 Some Field Experiments Bearing on Transmission of Blackhead in Turkeys. T. Smith, Princeton, N. J.—p. 405.
43 Coccidia in Sparrows and Their Assumed Relation to Blackhead in Turkeys. T. Smith and E. W. Smillie, Princeton, N. J.—p. 415.
44 *Intestinal Obstruction. Experimental Study of Intoxication in Closed Intestinal Loops. L. R. Dragstedt, J. J. Moorhead and F. W. Burcky, Chicago.—p. 421.
45 Influence of Certain Organic Substances on Growth of Tubercle Bacillus. P. A. Lewis, Philadelphia.—p. 441.
46 Proteose Intoxications and Injury of Body Protein. Metabolism of Fasting Dogs Following Proteose Injections. G. H. Whipple and J. V. Cooke, San Francisco.—p. 461.
47 Id. Metabolism of Dogs with Duodenal Obstruction and Isolated Loops of Intestine. G. H. Whipple, J. V. Cooke and T. Stearns, San Francisco.—p. 479.
48 *Effect of Cold on Malaria Parasites in Mosquito Host. W. V. King, New Orleans.—p. 495.

38. **Drug Fastness of Spirochetes.**—The authors attempted to determine whether or not, by subjecting several varieties of spirochetes to increasing doses of certain chemotherapeutic agents, a gradual increase of resistance to the latter could be shown. For this purpose, pure cultures of *Treponema pallidum*, *Treponema microdentium*, and *Spirochaeta refringens* were used against the action of salvarsan, neosalvarsan, bichlorid of mercury and iodin potassium iodid solution in vitro. *T. pallidum* and *T. microdentium* have, within three to four months, increased their tolerance to salvarsan and neosalvarsan to five and one-half times their original mark. With *S. refringens* the increase was about three times. Against the action of mercuric chlorid the amount of increased tolerance of *T. pallidum* was about 35 to 70 times the original, while that of *T. microdentium* was about ten times as much, and was reached within ten weeks. *S. refringens* resisted thirty times the original dose. There was an unmistakable increase of resistance of these spirochetes to the action of the iodin iodid solution (Lugol's solution) when they were grown for several generations in fluid medium containing the iodin solution, but the rate of increase between the initial and the acquired tolerance was slight. In general, the addition of Lugol's solution to fluid medium has a weak inhibitory influence on the growth of the spirochetes, requiring for the total suppression of growth a quantity of over 0.7 to 5 c.c. of the culture medium. The tolerance reached was for about three times that amount. A similar tolerance phenomenon has not been established when employing a solid instead of a fluid medium containing the drugs.

39. **Resistance of Spirochetes.**—The majority of the seventy-six new compounds tested by Akatsu possessed spirocheticidal powers ranging between 1:1,000 (30) to 1:2,500 (14), while only 2 attained the power of 1:5,000, 1 of 1:25,000, and 2 of 1:50,000. On the other hand, 8 killed the spirochetes in a dilution of 1:750, 10 in 1:500, 7 in 1:250, 1 in 1:100, and 1 in 1:50. Two with an activity of 1:50,000 and 1 of 1:25,000 were mercury compounds; mercuric chlorid kills the organisms in a dilution of 1:100,000 under the same experimental conditions. Phenol is spirocheticidal in a dilution of 1:2,500, 40 per cent. formaldehyd solution in 1:750, salvarsan in 1:7,500, and neosalvarsan in 1:2,500. Neither sodium nor potassium iodid displayed any marked spirocheticidal property (1:10 only), while iodin in the form of Lugol's solution was able to kill them at 1:75. Sodium cholate killed in 1:5,000, sodium glycocholate and taurocholate in 1:2,500 each, saponin in 1:7,500; sodium oleate in 1:7,000, and cobra lecithid and native cobra venom in a dilution of 1:1,000 each.

41. **Absorption of Fat in Depancreatized Dogs.**—It was found by the authors that dogs with a subcutaneous transplant secreting and discharging pancreatic juice externally absorbed no more fat than dogs in which the pancreatic remnant was undergoing rapid atrophy and sclerosis. Hence, the condition of the pancreatic tissue remaining in the body does not influence the amount of fat absorbed by the intestine. The absorption of fat by the intestinal mucous membrane is always markedly disturbed when the pancreatic secretion is excluded from the intestine. After the complete removal of all pancreatic tissue from an animal, the absorption of considerable amounts of fat can still take place.

44. **Intoxication in Closed Intestinal Loops.**—The authors' experiments showed that closed intestinal loops in which bacteria are first removed are compatible with life. Closed intestinal loops in which bacteria are present but in which tissue necrosis is prevented, are compatible with life. Closed aseptic intestinal loops in which the blood supply is completely occluded are compatible with life. The normal secretions and bacterial products of the duodenum and jejunum are not sufficiently toxic to produce any symptoms when allowed to drain into the abdominal cavity. The results do not support the theory of Draper of a normal toxic secretion of the duodenal mucosa, neutralized by the jejunal mucosa, or the perverted secretion theory of Whipple. Bacterial activity plus necrotic tissue, or the absorption of toxic products resulting from the action of putrefactive bacteria on necrotic tissue is the important factor in the rapid death in simple closed intestinal loops.

48. **Effect of Cold on Malaria Parasites.**—The experiments reported by King show that the parasite of tertian malaria in the mosquito host is able to survive exposure to a temperature of 30 F. for a period of two days, 31 F. for four days, and a mean temperature of 46 F. for seventeen days. In a smaller series of tests the sporonts of the estivo-autumnal parasite have shown a resistance to temperatures as low as 35 F. for twenty-four hours.

Journal of Parasitology, Urbana, Ill.

December, 1916, III, No. 2

49 *Effects of Radiation on Development of Trichinella Spiralis. E. F. Tyzzer and J. A. Honeij.—p. 43.
50 Nematodes from Fresh-Water Fishes. H. B. Ward and T. B. Magath, Urbana.—p. 57.
51 Polycystid Gregarines from Arthopoda. M. E. Watson.—p. 65.
52 Trematode Larva Encysted in Crab, Helice Tridens (De Haan). S. Yoshida.—p. 76.
53 Cytoleichus Penrosei, New Arachnoid Parasite Found in Diseased Lungs of Prairie Dog, Cynomys Ludovicianus. F. D. Weidman.—p. 82.

49. **Effects of Radiation on Development of Trichinella Spiralis.**—The results obtained by Tyzzer and Honeij fail to furnish an experimental basis for the treatment of schistosomiasis by radiation, so that if the latter is attempted it should be regarded as an experiment rather than an approved mode of procedure.

Kentucky Medical Journal, Bowling Green

March, XV, No. 3

54 Detection of Early Pulmonary Tuberculosis. E. Morris, Oak Forest, Ill.—p. 103.
55 Treatment of Tuberculosis. E. Morris, Oak Forest, Ill.—p. 109.
56 Specific Treatment of Tuberculosis. S. H. Von Ruck, Asheville, N. C.—p. 110.
57 *Indications for Cholecystostomy and Cholecystectomy. I. Abell, Louisville.—p. 114.
58 *What Can Internist Do For Infection of Bile Tract? W. A. Jenkins, Louisville.—p. 117.
59 Home Treatment and Cure of Opium and Morphin Addicts with Tabulated Report of Fifty-Two Cases. J. A. Snowden, Winchester.—p. 125.
60 Pruritus; Its Cause and Treatment. C. R. Lanahan, Louisville.—p. 131.

57 and 58. Abstracted in THE JOURNAL, Dec. 2, 1916, pp. 1693 and 1694.

Maine Medical Association Journal, Portland

February, VII, No. 7

61 Surgical Significance of Abdominal Contusions. F. H. Jackson, Houlton.—p. 209.
62 Asthma in Children. F. P. Webster, Portland.—p. 225.
63 Use of Duodenal Tube. R. F. Chase, Portland.—p. 230.

Medical Record, New York

March 3, XCI, No. 9

64 Hospital Social Service for Children. H. D. Chapin, New York.—p. 353.
65 Some Recent Work on Pancreas in Its Relation to Diabetes Mellitus. W. N. Berkeley, New York.—p. 355.
66 Compulsory Health Insurance. E. V. Delphey, New York.—p. 357.
67 Problem of Medical Care of Five Million Individuals. A. C. Burnham, New York.—p. 361.
68 Nonvenereal Infection of Prostate. G. K. Swinburne, New York.—p. 363.
69 Treatment of Asthma by Pituitary Extract and Epinephrin Injections. E. Zuebelin, Baltimore.—p. 364.
70 Approved Newer Methods of General Anesthesia. R. C. Coburn, New York.—p. 367.
71 Epithelioma of Nose Apparently Caused by Irritation from Tortoise Shell Spectacles. L. F. Herz, New York.—p. 370.

Michigan State Medical Society Journal, Grand Rapids

March, XVI, No. 3

72 Medical Library of University of Michigan and Its Value to Practitioners of Michigan. A. S. Warthin, Ann Arbor.—p. 89.
73 Mitral Stenosis, Aortic Stenosis, Aortitis, Angina Pectoris and Aortic Aneurysm. W. J. Wilson, Jr., Detroit.—p. 95.
74 Poliomyelitis. I. L. Polozker, Detroit.—p. 100.
75 Methods of Diagnosis in Abdominal Disease. J. B. Jackson, Kalamazoo.—p. 105.
76 Case of Postoperative Tetanus. H. S. Collisi, Grand Rapids.—p. 110.

77 Report of Two Cases of Von Recklinghausen's Disease (Neurofibromas). H. de B. Barss, Ann Arbor.—p. 113.
78 Case of Mycosis Fungoides. J. A. Elliott, Ann Arbor.—p. 117.
79 *Relation of Pernicious Anemia to Infection; Report of Case. L. H. Newburgh, Ann Arbor.—p. 118.
80 Case of Hydronephrosis Resulting in Carcinoma of Kidney Medulla. R. W. Kraft, Ann Arbor.—p. 120.

79. **Relation of Pernicious Anemia to Infection.**—The positive findings on physical examination in Newburgh's case were extreme pallor, lemon yellow color typical of pernicious anemia, a large spleen, a heart lesion, a blood picture which could not be distinguished from pernicious anemia, and fever. The fever, which gradually diminished, averaged 100 to 102 during the first week; during the second week it was a little lower; during the third week she had practically no fever. Two blood cultures were made and both were positive, probably a streptococcus.

Military Surgeon, Washington, D. C.

March, XL, No. 3

81 Influence of European War on Transmission of Infections of Disease. W. C. Rucker.—p. 245.
82 Combined Method (Fluoroscopy and Surgery) for Localization and Extraction of Projectiles. J. M. Flint, New Haven, Conn.—p. 259.
83 Secondary Sutures of Gunshot Wounds as Economic Factor in War Surgery. D. P. Penhallow, Paignton, England.—p. 274.
84 Saline Treatment of Infected Wounds on Western Front. W. A. Clark.—p. 278.
85 Occurrence of Endamebic Dysentery in Troops Serving in El Paso District from July, 1916, to December, 1916. C. F. Craig.—p. 286. To be continued.
86 Demography in so far as it Relates to Vital Statistics of Armies. W. P. Chamberlain.—p. 303.

Modern Hospital, St. Louis

March, VIII, No. 3

87 Philippine General Hospital, Manila. W. E. Musgrave, Manila.—p. 165.
88 How Much Coal Does a Patient Cost? R. C. Beadle, New York.—p. 172.
89 Tuberculosis Preventorium for Children, Farmingdale, N. J. J. P. Quimby, Farmingdale, N. J.—p. 177.
90 Experiment in Cooperative Care of Indigent Sick. W. B. Small, Waterloo, Iowa.—p. 180.
91 County Tuberculosis Sanatoriums in Minnesota. R. Bosworth, St. Paul, Minn.—p. 182.
92 Small Community Hospital—Interns, Nurses and Employees. J. A. Hornsby, Chicago.—p. 185.
93 Nopeming Hospital for Tuberculosis at Duluth, Minn. A. T. Laird, and W. L. Sullivan, Duluth, Minn.—p. 189.
94 Oleomargarine—Useful and Economical Substitute for Butter. J. P. Street, New Haven, Conn.—p. 195.

New Orleans Medical and Surgical Journal

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95 Colonization of Epileptics. W. B. Terhune, Jackson.—p. 612.
96 Agglutination of Bacteria by Means of Dried and Dosed Serums, with Special Application to Diagnosis of Cholera. G. Marocco.—p. 617.
97 Removal of Varicose Veins of Leg with Local Anesthesia. C. W. Allen, New Orleans.—p. 621.
98 Apothesine, New Local Anesthetic. C. W. Allen, New Orleans.—p. 623.
99 Sprains. I. Cohn, New Orleans.—p. 627.
100 New French Aid in Correction of Deformed Feet. P. A. McIlhenny, New Orleans.—p. 633.
101 Removal of Foreign Body (Knife Blade) from Brain. H. B. Gessner, New Orleans.—p. 636.
102 System of Peripatetics. E. S. Goodhue, New Orleans.—p. 639.

New York Medical Journal

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103 Destruction of Angiomas and Other New Growths by Injection of Quinin and Urea Hydrochlorid. W. W. Babcock, Philadelphia.—p. 385.
104 Carcinoma of Bladder. H. Lilienthal, New York.—p. 386.
105 Medical Department with Mobile Army. W. H. Steers, Brooklyn.—p. 388.
106 Report of One Year's Work in Tuberculosis. J. D. Gibson, Denver.—p. 396.
107 Method of Obtaining Duplicate Reconstructions from One Series of Wax Plates. F. D. Weidman, Philadelphia.—p. 400.
108 Restoration of Sight in Case of Hypermature Cataract of Twenty Years' Standing Complicated by Acute Glaucoma. M. Talmey, New York.—p. 401.
109 Research in Epilepsy. H. A. Knox, Bayonne, N. J.—p. 406.
110 Chorea Complicating Labor. K. B. Bretzfelder, New Haven, Conn.—p. 409.

Ohio State Medical Journal, Columbus

March, XIII, No. 3

111 Need of Greater Appreciation of Foods. T. H. Infield, Zanesville.—p. 149.
112 Maxillary Sinusitis, Diagnosis, Pathology and Treatment. W. O. Bonser, Toledo.—p. 151.
113 Adenomas of Mammary Gland. J. W. Means and J. Forman, Columbus.—p. 154.
114 Venice Turpentine in Treatment of Burns. H. F. Biggar, Cleveland.—p. 157.
115 Treatment of Simple Proctitis, Sigmoiditis and Colitis. W. Teachnor, Columbus.—p. 158.
116 Physiology of Pituitary. C. McPeek, Columbus.—p. 161.
117 Milk Supply as it Concerns Practicing Physician. F. G. Boudreau, Columbus.—p. 166.
118 Postmortem Cesarean Section; Report of Case. O. T. Sproull, West Union.—p. 169.

Oklahoma State Medical Association Journal, Muskogee

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119 Inquiry into Medicolegal Status of Traumatic Neuroses. A. K. West, Oklahoma City.—p. 85.
120 Mortality Around Fifty Years. J. H. Florence, Houston, Texas.—p. 90.
121 New Operation for Canthoplasty with Special Technic in Cases Due to Trachoma. D. W. White and P. C. White, Tulsa.—p. 93.
122 Tumors of Long Bones. Case of Osteochondrofibroma of Femur. J. A. Brooke, Oklahoma City.—p. 100.
123 Treatment of Fractures of Femur. G. A. Kilpatrick, McAlester.—p. 104.
124 Anesthesia. J. T. Riley, El Reno.—p. 108.
125 Differential Diagnosis and Treatment of Diseases of Throat, Characterized by Formation of Pseudomembrane. M. C. McNew, Ada.—p. 144.

Ophthalmic Record, Chicago

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126 Coloboma of Iris in Association with Congenital Cataract. G. O. Ring, Philadelphia.—p. 113.
127 Eskimo Snow Blindness and Goggles. J. Daland, Philadelphia.—p. 116.
128 Ocular Disturbances Due to Malaria and Quinin. J. S. Fernandez, Havana, Cuba.—p. 118.
129 Cornea and Retina of Eye. O. Haab, Switzerland.—p. 124.
130 New Operation for Canthoplasty with Special Technic in Cases Due to Trachoma. D. W. White and P. C. White, Tulsa, Okla.—p. 132.
131 Making Ophthalmometer More Helpful. S. Mitchell, Hornell, N. Y.—p. 143.
132 Spontaneous Rupture of Cornea and Delivery of Lens in Glaucomatous Eye. J. H. Andrew, Brooklyn.—p. 144.
133 Local Anesthetizers. E. E. Maddox, Bournemouth, England.—p. 145.
134 Some Experiences with Colored Lenses Under Subtropical Conditions. F. J. Walter, Daytona, Fla.—p. 146.

Rhode Island Medical Journal, Providence

March, I, No. 3

135 Study of Empyema or Pyothorax. J. W. Keefe, Providence.—p. 57.
136 Hookworm Disease in Rhode Island. A. M. Burgess and P. D. Meader, Providence.—p. 61.
137 Gynecology as Specialty. W. G. Sullivan, Providence.—p. 65.
138 Case of Tuberculous Meningitis. H. S. Bernstein, Providence.—p. 68.

West Virginia Medical Journal, Huntington

January, XI, No. 7

139 Ectopic Gestation with Special Reference to Treatment. X. O. Werder, Pittsburgh.—p. 233.
140 Hospital and Physician. P. O. Clark, Wheeling.—p. 238.
141 Work of Division of Sanitary Engineering of West Virginia State Department of Health. M. Tolman, Charleston.—p. 244.
142 Why West Virginia Needs Model Law for Collecting Vital Statistics. H. B. Wood, Charleston.—p. 247.
143 Clinical Notes—Chicago Clinics, November, 1916. J. E. Cannaday, Charleston.—p. 248.
144 Toxicity of Present Supply of Salvarsan and Neosalvarsan. O. S. Ormsby and J. H. Mitchell, Chicago.—p. 250.

February, No. 8

145 Plea for Mothers. E. H. Thompson, Bluefield.—p. 273.
146 Preparation of Patient for Operation and for Postoperative Treatment. J. A. Guthrie, Huntington.—p. 276.
147 Erysipelas. H. R. Fairfax, McConnor.—p. 278.
148 Raynaud's Disease. E. S. DuPuy, Beckley.—p. 279.
149 Physical Methods of Treatment. O. B. Beer, Buckhannon.—p. 281.
150 Conservation of Health of Schoolchildren. R. H. Edmondson, Morgantown.—p. 283.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

February, X, No. 4

1 *Roentgenography in Dysentery and Other Cases. C. T. Holland, —p. 357.
2 *Intestinal Protozoa of Nondysenteric Cases. A. M. Smith and J. R. Matthews.—p. 361.
3 Spirochetes Occurring in Feces of Dysenteric Patients. H. F. Carter.—p. 391.
4 Treatment of Entameba Histolytica Infections by Alcresta Ipecac. J. W. W. Stephens and D. L. Mackinnon.—p. 397.
5 *Protozoal Findings in Nine Hundred and Ten Cases of Dysentery. H. F. Carter, D. L. Mackinnon, J. R. Matthews and A. M. Smith.—p. 411.
6 Arneth Count in Healthy Aboriginal Children of Northern Australia. A. Breinl and H. Priestley.—p. 427.

1. **Roentgen Examination in Dysentery.**—Holland reports negatively on this question. He says that the shadows in the roentgenogram do not show any difference from shadows which are frequently seen when bismuth or barium meals are being watched through a bowel. Bismuth does not adhere to the surfaces of either gastric or duodenal ulcer; why should it adhere to ulcers in the large bowel?

2. **Intestinal Protozoa of Nondysenteric Cases.**—In addition to the common intestinal protozoa which Smith and Matthews found among the 500 patients whose stools they examined, cyst-like bodies were observed in the feces of seven of the patients. These were the vegetable organisms described by Wenyon and to which the name "I body" has been given. The infection was pure in four cases, but in the other three cases the organism occurred with various protozoa. The infection was occasionally fairly heavy, and in two cases was remarkably persistent. In four cases the patients had a previous history of diarrhea, while in the remaining three cases there was none. Six out of the seven patients infected had been in the Mediterranean area. In the remaining case the patient had spent a year in France. The eggs of *Trichocephalus dispar (Trichuris trichiura)* were found in four cases. The infection was always small. Three of the patients concerned had been to subtropical parts of the world. One of the infections occurred, however, in a sailor who had never been out of home waters.

5. **Protozoal Findings in Dysentery.**—Among these 910 cases there were (other than protozoal) six cases which showed worms' eggs in the feces; four patients were infected with *Trichuris trichiura* (L.) (= *Trichocephalus dispar*, Rudolphi), one with *Ascaris lumbricoides*, L., and one with *Ancylostoma duodenale*, Dubini. The organism described under the name "I body" was found in five cases.

British Medical Journal, London

February 10, I, No. 2928

7 *Therapeutic Administration of Oxygen. J. S. Haldane.—p. 181.
8 Minor Injuries to Joints. F. Romer.—p. 183.
9 Diseases of Male Urethra. F. S. Kidd.—p. 185.
10 Characters of Enterococcus. R. Donaldson.—p. 188.
11 Delayed Tetanus in Connection with Injuries to Bone not Presenting Obvious Signs of Sepsis. M. Foster.—p. 189.
12 *Smallpox Vaccination by Puncture. H. W. Hill.—p. 189.
13 Treatment of Malaria and Malarial Coma by Intravenous Injection of Quinin Urethan. Richet and W. B. Griffin.—p. 190.

7. **Therapeutic Administration of Oxygen.**—Haldane first discusses the physiologic effects of oxygen want, then how oxygen want is produced, what seems to be possible in directly combating it by oxygen administration, and what risks have to be avoided. Speaking of carbon monoxid poisoning, he says: In poisoning by carbon monoxid and similar respiratory poisons, death occurs when about 80 per cent. of the hemoglobin is disabled. If the patient is still alive there will, therefore, still be 20 per cent. of his hemoglobin available. But by administering pure oxygen one can at once increase the amount of oxygen in simple solution to about 2.5 c.c. This promptly averts any further danger from want of oxygen, and in carbonic oxid poisoning the oxygen rapidly drives out carbon monoxid from the hemoglobin, so that after fifteen or twenty minutes of continuous administration the oxygen may be discontinued. In acute inflammatory conditions of the lungs there is sometimes also want of oxygen, as shown by cyanosis; and in cases in which the inflammatory condition is accompanied by the presence of "edematous" exudation throughout the lungs, the cyanosis is often very great. When there is cyanosis (whether of the deep purple or gray type) due to hindered passage of oxygen through the alveolar walls, this can be combated by raising the percentage of oxygen in the alveolar air and so increasing the diffusion pressure. In ordinary cases of croupous pneumonia the alveolar oxygen pressure may be a matter of decisive importance.

In cases in which the source of danger is a failure of the circulation, the inhalation of oxygen may also be of use, and Haldane has seen the cyanosis in a case of valvular disease clear up at once on the administration of oxygen. In cases in which prolonged administration of oxygen seems desirable, the minimum quantity of oxygen which will remove the cyanosis should be carefully ascertained by observation of the patient. This minimum quantity is likely to be anything from 1 to 3 liters per minute. The quantity needed will depend on the weight and age of the patient; and if hyperpnea due to carbon dioxid is present, a larger quantity will be needed to reach a given percentage. A man at rest usually breathes about 7 liters of air a minute. The probable risks of prolonged administration of pure oxygen must be borne in mind, and if necessary balanced against the risks of allowing the oxygen want to continue.

12. **Smallpox Vaccination by Puncture.**—The method described by Hill is the one used in Canada since 1915. It is as follows: Wash the arm with soap and water, then with rectified spirits, and with ether. Expel the vaccine at three (or four) points on the arm, making a triangle (or square) having not less than 2 inches between the points. Puncture the arm through the drops of vaccine. Six tiny punctures, drawing no blood, are made through each drop, each set of six occupying a space of not more than ⅛ inch square. The needle is held almost parallel with the surface. Not over one thousandth of an inch enters the epithelial layer. A peculiar little "snick" is felt as the needle point goes in.

Lancet, London

February 17, I, No. 4877

14 Influence Exerted by Military Experience of John Hunter on Himself and Military Surgeon of Today. G. H. Makins.—p. 249.
15 Naval Medicine in Great War. H. D. Rolleston.—p. 255.
16 *Passive Immunity Conferred by Prophylactic Dose of Antitetanic Serum. A. T. MacConkey and A. Homer.—p. 259.
17 *Clinical Agglutinometer; Apparatus for Use at Bedside or in Laboratory for Making Rapid Estimations of the Agglutinin Titer of the Blood. R. P. Garrow.—p. 262.
18 *Effect of Pyrexia on Inoculation Agglutinins. G. S. Wilson.—p. 263.
19 Unrestricted Diet of Sedentary Worker. A. D. Waller.—p. 272.

16. **Immunity Conferred by Antitetanic Serum.**—The object of this communication is to record some experiments made to ascertain the smallest quantity of antitoxin which would give complete protection for one week. The authors found that in the guinea-pig ¼, ½ or ¾ U. S. A. unit does not afford complete protection for one week, though these amounts saved life against a dose of toxin which was fatal to the controls. However, 1 unit or more gives complete immunity during at least one week. As an ordinary man is about 220 times heavier than guinea-pigs, this would mean that, calculating by body weight only, a man would require some 250 U. S. A. units to protect him for a week, while a dose of 500 U. S. A. units would allow for a man being twice as susceptible as the guinea-pig. As large a dose of 40 U. S. A. units (corresponding to at least 8,000 units in man) does not afford complete protection for a fortnight.

17. **Clinical Agglutinometer.**—The technic described by Garrow is an elaboration of Bass and Watkins' method with the object of rendering it not merely a qualitative test for agglutinins in the blood, but an accurate quantitative estimation of the agglutinin titer of the blood. This object is attained by means of an apparatus which Garrow devised, "clinical agglutinometer," for use at the bedside or in the laboratory.

18. **Effect of Pyrexia on Inoculation Agglutinins.**—A series of ninety-seven soldiers and others, who had been inoculated within the preceding twenty months against typhoid, was taken by Wilson and the agglutinin titer of the serum of each patient was estimated. The average agglutinin titer of serums obtained from patients who suffered from a febrile attack since inoculation was lower than that of those who had no such attack. As regards the effect of pyrexia on the agglutinin titer, there appeared to be no appreciable difference between a short, high, and a long, low temperature. The results as obtained by the macroscopic and microscopic methods, taken on the average, are very similar. The relations in the individual cases between the two methods are extremely variable, the macroscopic methods showing very marked agglutination in some cases in which the microscopic failed to demonstrate any at all. Wilson analyzes his findings as being only a suggestion that febrile conditions decrease the agglutinin titer. Persistence of agglutinins in the serum of a patient who has had a temperature of 102 F. for four days, whether estimated by the macroscopic or the microscopic method, is insufficient to justify a diagnosis of typhoid.

Journal of Tropical Medicine and Hygiene, London

February 1, XX, No. 3

20 Acanthokeratodermia Precornufaciens. A. J. Chalmers and S. Atiyah.—p. 25. To be continued.

Medical Journal of Australia, Sydney

January 20, I, No. 3

21 Recruit's Heart and Soldier's Heart. R. R. Stawell.—p. 49.
22 Case of Hydatidiform Mole. J. G. W. Hill.—p. 53.

January 27, No. 4

23 Treatment of Septic Compound Fractures. H. M. Moran.—p. 71.
24 Nerve Injuries Seen on Active Service. A. E. Mills.—p. 73.
25 Impressions of Medical Work at Front. J. Morton.—p. 75.
26 Experiences with No. 2 Australian Stationary Hospital. J. E. F. Deakin.—p. 76.
27 Bilharziosis. P. E. W. Smith.—p. 79.

February 3, No. 5

28 Sprue in North Queensland. A. Breinl and H. Priestley.—p. 95.
29 *Unusual Deformity of Hand. J. N. Griffiths.—p. 101.
30 Some Cases of Metastatic Meningococcal Infection of Eye. E. T. Smith.—p. 101.
31 Myxedema of Twenty Years' Duration Commencing in Child of Nine. J. C. Verco.—p. 102.

29. **Deformity of Hand.**—Early in infancy Griffiths' patient sustained a severe burn of the hand. The wound healed with the little finger bent back over the hand and under the scar tissue. The separate phalanges were palpable under the scar tissue. A misformed finger nail projected free from the skin.

Bulletin de l'Académie de Médecine, Paris

January 23, LXXVII, No. 4, pp. 103-114

32 *Uremia and the Internal Secretions. Rémond and Minvielle.—p. 105.
33 Correction of Malformed Noses without a Scar. (Les nez vilains corrigés chirurgicalement sans cicatrice.) J. Bourguet.—p. 107.
34 *Vaccine Therapy of Typhoid Osteomyelitis. P. Emile-Weil—p. 108.
35 Influence of Vasodilatation on Localization of Spontaneous Vaccinal Pustules. L. Camus.—p. 111.

32. **Uremia and the Internal Secretions.**—Rémond and Minvielle report a few experiences with rabbits, undertaken to demonstrate the defensive power of the association of the extracts of the liver and the thyroid against the toxic products in the serum of persons with uremia. The animals injected with a liver extract and thyroid extract seemed to bear injection of human uremic blood serum much better than the controls. It also afforded protection against cantharides nephritis to a certain extent.

34. **Vaccine Therapy of Typhoid Osteomyelitis.**—One patient was cured in three weeks by the vaccine therapy of a typhoidal suppurating bone process that had dragged along for two years, during which time it had been subjected to seven futile operations. The cure was complete in one week in another case after eleven months of the affection and three operations. Improvement amounting to a cure was obtained also in two weeks in processes of six and twelve months' standing in other cases. It failed only in one case and a sequester was found and removed, and the process is now healing.

Paris Médical

February 3, VII, No. 5, pp. 85-120

36 *Treatment of Diarrhea of Breast-Fed Infants. A.-B. Marfan.—p. 87.
37 Deficit Disturbances in Infants. (La notion de la "carence" en pathologie infantile.) E. Weill and G. Mouriquand.—p. 92.
38 The Factory Worker's Infant and Infant Mortality. A. Lesage.—p. 97.
39 Outdoor Convalescence for Infants. (La lutte contre la mortalité infantile par les convalescences de plein air.) H. Triboulet.—p. 101.
40 Physical Education; Its Aims and Control. H. Méry.—p. 105.
41 Pulmonary Tuberculosis in Infants under Two. H. Barbier.—p. 109.
42 Drosera in Whooping Cough. (Traitement de la coqueluche.) P. Lereboullet.—p. 114.
43 Progeria in Dwarfs. (Nanisme à type sénile ou progeria—sénilité prématurée.) P. Lereboullet.—p. 118.

36. **Diarrhea in Breast-Fed Infants.**—Marfan says that it is not necessary to keep the child exclusively on water when it develops diarrhea. It is enough to lengthen the intervals between feeding, and give a few teaspoonfuls of boiled water in the interim.

Presse Médicale, Paris

January 11, XXV, No. 3, pp. 25-32

44 *Gastro-Enteritis for which Uremia is Responsible. C. Lesieur.—p. 25.
45 Value of Alcohol in Sterilization of the Hands. E. Marquis.—p. 28.

44. **Uremigenic Gastro-Enteritis.**—Lesieur applies this term to a subacute form of gastro-enteritis of the hypertoxic, choleriform type. He has encountered it in 33 of 413 soldiers with gastro-enteritis in the course of six months, among 1,230 cases of diarrhea. The mortality was 33 per cent. and the postmortem findings resembled closely those of grave gastro-enteritis in infants, due to toxic action. The liver was always large but the kidneys showed severe lesions, mostly accompanied by lesions of long standing, explainable by some old acute infectious diseases, scarlet fever, typhoid, or else by abuse of alcohol. The heart was also decidedly below par. Bacteriologic examination gave variable findings, but the common substratum of the kidney lesions imprinted the stamp on the clinical picture, with its choleriform condition, oliguria and uremia.

Progrès Médical, Paris

January 13, XXXII, No. 2, pp. 9-18

46 *Tests of the Hearing. (Expériences relatives au contrôle auditif.) H. Gosset.—p. 9.
47 Relapsing Fever in Servia. Duchamp.—p. 10.
48 Extract of Blood Platelets in Arrest of Hemorrhage. (Les propriétés physiologiques des globulins, leur rôle dans la coagulation du sang.) E. Forgues.—p. 14.

46. **Detection of Simulation of Deafness.**—Among Gosset's tests for simulation is one in which he tells the patient to give the sound "Ah" as high as he can and then continue it down as low as he can. The truly deaf stop when they reach the point below which they cannot hear their own voice, while the simulator continues to the base of the scale. The test can be applied reversed. In the cases of deafness from shell shock, the immobilized organ, having its function arrested, soon falls a prey to degeneracy. In deafness from any shock, sensation and motor and psychic factors cooperate in maintaining the derangement, and it must be acted on by each of these three routes. Reeducation is the guiding principle.

Revue Médicale de la Suisse Romande, Geneva

November-December, 1916, XXXVI, No. 11-12, pp. 677-824

49 Conditions Producing Amphoric Resonance with Induced Pneumothorax. L. Bard.—p. 677.
50 Association of Drugs. (Des associations médicamenteuses.) M. Roch.—p. 684.
51 *Surgical Treatment of Pyloric Stenosis in Infants. E. Monnier.—p. 704; H. Vulliet.—p. 710.
52 Fibrinous Pseudo-Râles with Empyema. F. Heim and Jeanneret-Minkine.—p. 716.
53 *Nerve Blocking for Operations on Limbs. (Toutes les interventions chirurgicales sur les membres peuvent, à l'aide de points de repère précis, relever de l'anesthésie tronculaire.) A. Jentzer.—p. 720.
54 *Spontaneous Dislocation of the Hip Joint in Congenital and Infantile Spastic Paralysis. A. Richard.—p. 735.
55 Obstruction and Inflammation of Wharton's Duct. (Whartonite aigue suppurée à la suite d'une obstruction par un calcul salivaire.) L. Du Pan.—p. 765.

51. Operative Treatment of Stenosis of the Pylorus in Infants.—Mounier has applied Rammstedt's method in four cases of infants, 3, 4 and 8 weeks old, and the results were most satisfactory. One child was so emaciated from the constant vomiting that any intervention seemed hazardous. But the vomiting stopped at once after the operation and the infant rapidly recuperated. None of the children probably would have survived a more complicated operation. The Rammstedt technic is merely to slit lengthwise the muscular fibers of the pylorus which are always hypertrophied in these cases. The incision leaves the mucous membrane intact. The cut edges spread apart for 2 or 3 mm. leaving a gap in the depths of which the mucosa can be seen slightly protruding. No suturing is done; at most a small flap of omentum is drawn over the gap. The whole procedure takes only a few minutes.

Vulliet discusses the limits for conservative measures, and gives an illustration of the Rammstedt technic as applied with complete success in an infant almost moribund from the incessant vomiting. The operation is done under a few drops of chloroform or ether or both, drawing the pyloric region out through a small opening above the umbilicus. The pylorus formed a hard tumor, in size, shape and hardness like an almond, the surface anemic but nothing to suggest an inflammatory process. He incised the serous and muscular coats down to the mucosa, and the cut edges gaped widely but there was scarcely any bleeding. Rammstedt warned that the feeding of the infant must be resumed very cautiously or there is liable to be trouble. In this case the infant was so hungry that it was given too much at first, and the child vomited anew while the weight declined. With more scrupulous care as to feeding and finally a wet nurse, all trouble subsided.

53. Nerve Blocking for the Limbs.—Jentzer has worked out on the cadaver the best means and sites for nerve blocking on the limbs, and reports excellent results from this method of anesthesia alone or supplemented by infiltration anesthesia. He gives the details of thirteen cases, mostly of suppurating tuberculous processes, including one case in which three large drains were drawn through the three fistulas, all emerging together in the palm. He usually combined infiltration to encircle the limb with the nerve blocking technic. An important advantage of the latter is that it actually cuts off the pain. Sensation does not reach the perceiving centers, while with general anesthesia, although the patient does not feel the sensation of pain yet it reaches the nerve centers and acts on them, and this is undoubtedly a factor in surgical shock. The work issues from the surgical clinic at Geneva.

54. Spontaneous Dislocation of the Hip Joint with Spastic Paralysis.—Richard discusses the different forms of Little's disease as encountered at the surgical clinic at Bâle, and the cases of spontaneous dislocation of the hip joint as observed there and published in the literature. The two personal cases were a young man and a girl of nearly 7. The child has a positive Wassermann although the mother gives a negative reaction. The spastic paralysis in the region not only modifies the position of the parts of the joint but interferes with their functioning and hence with normal growth. The young man was treated by reduction, tenotomy of the adductors and of the tendon of the fascia lata, but this not proving successful, arthrodesis was done, with tenotomy later of the sartorius and anterior rectus. The desired result was thus realized in time. The little girl was treated with tenotomy of the adductors, of the tendon of the fascia lata and part of the anterior rectus, with immobilization as for congenital luxation. But no benefit was derived, complete failure resulting. The outcome evidently depends in lärge measure on the intensity of the spasmodic contracture. Arthrodesis is evidently the only recourse when the acetabulum is displaced.

Archiv für klinische Chirurgie, Berlin

1916, CVII, No. 3, pp. 379-530. Last indexed Dec. 23, 1916, p. 1975

56 *Gallstone Obstruction and Retention Main Factor in Destructive Processes. (Die Gallensteinkrankheit im Lichte der Anfalloperation.) Sprengel.—p. 379.
57 Case of Two Complete but Empty Supernumerary Prepuces. (Eine bisber unbekannte Geschlechtsteilmissbildung beim Mann.) F. Danziger.—p. 463.
58 *Diversion of Ascitic Fluid into Subcutaneous Tissue Causing Large Local Accumulation of Fluid. (Entstehung eines grossen Hautwassersacks nach subkutaner Ascitesdrainage.) K. Henschen. —p. 469.
59 *Cartilage Transplants. (Neue Experimente zur Frage der homoplastischen Transplantationsfähigkeit des Epiphysenknorpels und des Gelenkknorpels.) F. H. von Tappeiner.—p. 479.
60 Abdominal War Wounds, Especially Wounds of the Liver. (Ueber Bauchschüsse.) E. Lick.—p. 509.

56. Cholelithiasis as Illuminated by Local Findings in Operating During an Attack.—Sprengel gives four colored plates showing that in the gallbladder, as well as in the appendix, the acute mechanical disturbances from obstruction of the outlet are entirely different from the disturbances that occur with slowly developing chronic processes. The latter are of far less pathogenic importance as the retention is mainly responsible for the havoc set up. Sprengel's experience with 104 operative gallstone cases in eighteen recent months shows that obstruction of the outlet and retention entail necrotic processes in the mucosa and perforation, whether there is infection or not, if the contents are virulent. The infection may be and often is secondary. In 43 of the cases the operation was done in the midst of an acute attack. In 26 of these cases the contents of the gallbladder were virulent and an insoluble stone was found plugging the outlet in 21 of them, in 2 others this was dubious, and in 3 the outlet was completely obstructed although not by a stone. In a further group of 16 cases the contents were virulent, but the stones were of the soluble kind, and the obstruction was only temporary. These are the typical "colic" cases. In a third group of 3 cases the obstruction was complete but the contents were sterile and merely hydrops resulted. In all these types repair sets in as soon as the obstruction to the outlet has been removed.

58. Outcome of Subcutaneous Drainage of Ascitic Fluid.—Henschen gives illustrations of a woman who had been treated for ascites five years before by diversion of the ascitic fluid into the subcutaneous tissue. It had accumulated in the abdominal wall, forming a large pendant bag on both sides. The case shows that the tissues are unable to absorb such excessive amounts of fluids. The woman had to be tapped occasionally. Conditions were about the same when examined the third and fifth years.

59. Cartilage Transplants.—Tappeiner reports extensive experimental work on rabbits and dogs with homoplastic implants of epiphyseal and joint cartilage. The joint cartilage gave the best results, but even these were disappointing. Only in two of the total series of rabbits did the cartilage retain its shape.

Berliner klinische Wochenschrift

January 8, LIV, No. 2, pp. 25 48

61 Present Status of our Knowledge of Ranula Cysts. E. Neumann. —p. 25.
62 *The Artificial Hand in the Practice of Medicine. (Die künstliche Hand im arztlichen Beruf.) M. Cohn.—p. 29.
63 Methyl Violet Medicated Gauze. R. Hey.—p. 32.
64 Sclerodermia with Sclerodactylia. J. Zadek.—p. 36.
65 Spontaneous Infectious Gangrene of External Genitals in Soldiers. J. Kyrle.—p. 37.

62. The Artificial Hand in the Practice of Medicine.—Cohn had been practicing medicine for seventeen years when the loss of his left hand compelled the use of an artificial hand, and he relates that he is able to work with it almost as before, with very few exceptions. He knows of three other physicians who have lost a hand in the war, and he sees no reason why those long trained and long practicing medicine cannot continue their medical career. He found recently, however, that the societies protecting physicians against suits for malpractice have annulled his policies. He mentions a physician in America, who, he has been told, seems to have been able to keep up his practice perfectly well with an artificial hand.

Münchener medizinische Wochenschrift, Munich

January 2, LXIV, No. 1, pp. 1-40

66 *Epidemic of Myositis Simulating Cerebrospinal Meningitis. (Epidemie von myositischer Pseudogenickstarre.) H. Curschmann. —p. 1.
67 *Causes of Death with Intraperitoneal Rupture of the Bladder. F. Rost.—p. 5.

68 *Search for and Treatment of Bacilli Carriers. (Ueber Bazillenträgeruntersuchungen.) P. T. Müller.—p. 6.
69 Nearly Complete Utilization of Synthetic Ethyl Esters of Stearic Acid. (Die Ausnutzung synthetischer Fettsäureäthylester beim Menschen und beim Hunde.) H. H. Franck.—p. 9.
70 Means Proposed to Increase the Strength of the Young. (Hebung der Volkskraft durch Kräftigung unserer Jugend.) Doernberger.—p. 10.
71 Trigeminal Neuralgia and Anesthetization of Gasserian Ganglion. F. F. Härtel.—p. 11.
72 *A Serochemical Reaction in Syphilis. C. Bruck.—p. 25.
73 Biceps Prothesis. (Zur Versorgung von kurzen Vorderarmstümpfen durch Muskelunterfütterung.) H. Spitzy.—p. 26.
74 Roentgen Therapy Preferable to Operation for Tuberculous Cervical Glands. M. Wilms.—p. 29.
75 *Improved Technic for Inguinal Herniotomy. (Ein Verfahren der Operation von Leistenhernien.) E. Seitz.—p. 29.
76 Nervous Heart and Heart Neuroses. Geigel.—p. 30.
77 Pathology of War Epidemics. K. Helly.—p. 32.
78 Simplified Culture Medium for Typhoid Group. W. Kulka.—p. 32.
79 Determination of the Rickettsia Prowazeki in Typhus Patients. H. da Rocha-Lima.—p. 33.
80 Reinfusion of Blood after Puncture of Recent Hemathorax. Elmendorf.—p. 36.
81 Injuries from Asphyxiating Gases. P. Ujlaki.—p. 37.
82 Bath and Disinfection Cart for Field Use. R. Ohm.—p. 37.
83 Support for Pelvis. (Eine Feldbeckenstütze.) O. Vulpius.—p. 39.
84 *Actively Movable Artificial Arms. (Armersatz nach Carnes oder Sauerbruch?) von Baeyer.—p. 39.

66. **Epidemic of Myositis Simulating Meningitis.**—Curschmann describes some typical cases out of an epidemic of severe articular and muscular rheumatism affecting the spine and muscles in the neck exclusively, and thus producing the clinical picture of epidemic meningitis at first. In most of the cases this acute febrile polyarthritic or monomyositic or polymyositic rheumatism remained restricted to the neck region. The epidemic was quite widespread through the Mainz region in children and adults during the spring of 1908. The muscular process showed no signs of migrating to other regions. The sternocleidomastoid and trapezium muscles were tender and in some cases swollen. The onset was always stormy, with vomiting and high fever, and the fever kept high with subsidence by lysis. Notwithstanding this stormy onset, the myalgia and the contracture seemed to pass off harmlessly in from four to five days or six to eight; only in two cases did the affection last three weeks. In a few cases there seemed to have been a prodromal stage of pains in limbs and back resembling those of influenza, and in one case actual acute articular rheumatism had preceded and then merged abruptly into the cervical myositis. After recovery, unilateral chorea followed. Treatment in all the cases was merely with salicylates and local application of heat, dry or moist.

67. **Cause of Death in Intraperitoneal Rupture of the Bladder.**—Rost protests against the general assumption that peritonitis is responsible for the early fatal outcome in these cases. The patients who die within the first three days succumb to uremia, not to peritonitis; in fact, before peritonitis has had time to develop. This assertion is based on extensive clinical and experimental work, and it teaches the necessity for operating at once, without waiting to see if peritonitis is going to develop.

68. **Search for Bacilli Carriers.**—Müller reports here that 165 carriers of typhoid, paratyphoid or dysentery bacilli were found among the 20,019 men examined in about two months last spring. Among the lessons taught by his experience is the necessity for systematic reexamination at intervals of all the men who have anything to do with the preparation or handling of the food. He also emphasizes the necessity for repeated reexamination of carriers of dysentery bacilli, as the conditions of their elimination vary at different times. His epidemiologic studies have further shown that an indigestible meal or exposure to cold and wet is liable to bring on the disease in a previously healthy carrier.

72. **A Chemical Seroreaction in Syphilis.**—Bruck states that during the ten years since he, with Wassermann and Neisser, applied the complement fixation test to the diagnosis of syphilis, he has been constantly striving to work out a chemical technic which would have the same diagnostic significance and would render the amboceptor, complement, etc., unnecessary. Recently he noticed that the nitric acid precipitate of syphilitic serum behaves differently from that from normal serum. With normal serum the precipitate dissolves completely, while with syphilitic serum it persists and piles up in a gelatinous and characteristic pile on the floor of the test tube. The reaction seems to be due to a quantitative difference; syphilitic serum seems to contain more of the substance which nitric acid precipitates. His tests of the reaction on 200 syphilitic and 200 normal serums gave almost constantly concordant results, harmonizing with the clinical findings and almost always with the Wassermann findings. The patients with positive Wassermann findings all gave a positive chemical reaction, with the exception of one case of latent syphilis, and two in the second stage of syphilis who gave only a weakly positive reaction. The negative Wassermann cases were all persistently negative in the chemical test, with the exception of one case of inherited syphilis and one of a large defect in the palate. The Wassermann dubious findings were always decidedly positive or negative with the chemical test, and the effect of treatment could be traced in the chemical reaction.

The official pure nitric acid sometimes varies in its proportions. The one on which his technic is based contained in each 100 gm. 24.77 HNO_3, in each 100 c.c. 28.48 HNO_3. The specific gravity was 1.149. It is best to test the nitric acid until the exact amount is determined which, with normal serum, still gives a negative reaction. This amount is then to be used for the test. With the nitric acid he used, 0.3 c.c. answered the purpose. The test is made with 0.5 c.c. clear serum in a test tube to which is added 2 c.c. distilled water, and the whole shaken. Then, with a precision pipet, the 0.3 c.c. of the Ac. nitr. purum of the German pharmacopeia is added and the whole thoroughly shaken and then set aside at room temperature for ten minutes. Then 16 c.c. of distilled water at room temperature (about 15 C.) is added and, closing the tube with the finger, it is shaken up and down three times carefully, not vigorously enough to make it foam. This is repeated ten minutes later, and the tube is then set aside for half an hour. By this time the precipitate is entirely dissolved in the tube with normal serum, while the syphilitic serum shows a distinct flocculent turbidity. In two or three hours or, better still, in twelve hours, the gelatinous and characteristic precipitate is piled up on the floor of the test tube.

75. **Improved Technic for Inguinal Herniotomy.**—Seitz shows by two illustrations the weak point left by the Bassini technic and describes how he obviates this by slitting the hernial sac and spreading it out flat and suturing it over the gap. The neck of the sac is ligated and cut off close. He has applied this method only in cases of indirect inguinal hernia, but he thinks it is applicable also for the direct.

84. **Artificial Arms.**—Baeyer discusses the various advantages of the Sauerbruch and the Carnes systems of prostheses for the arm. He says that Carnes' patents have been bought by a German philanthropic organization and a Berlin factory is already turning out the arms in large numbers. The Carnes artificial arm is under control of the muscles of the shoulder and back, while Sauerbruch provides the stump with passages through the muscles from which voluntary control of the prothesis can be realized. Parallel tests with both systems seem to show that the Sauerbruch principle is simpler, while the working with the arm is less fatiguing. The men could pick up a match out of a box of matches, shuffle cards, and draw their sword out of the scabbard—three types of ordinary movements. On the whole, he declares, and for the general run of men, the Sauerbruch method seems the most advantageous.

Wiener klinische Wochenschrift, Vienna

January 4, XXX, No. 1, pp. 1-32

85 Treatment of War Wounds of Vessels and Traumatic Aneurysms. L. R. v. Rydygier.—p. 1.
86 *Operative Treatment of Abdominal Wounds in Later Stage. (Bauchschusse im Spatstadium.) B. O. Pribram.—p. 2.
87 *Tardy Tetanus. Doberer.—p. 8.
88 High Resection of Nerve with Short Stumps below the Knee. (Entfernung des Fibularestes und hohe Resektion des Nervus peronaeus bei kurzen Unterschenkelstümpfen.) P. Erlacher.—p. 12.
89 New Thumb Made with Second Metacarpus as Terminal Bone. (Daumenplastik.) B. R. v. Arlt.—p. 15.
90 Prophylaxis of Gas Phlegmons and Tetanus by Mechanical Cleansing of Wounds and Peruvian Balsam. M. Segen.—p. 16.

91 Glue in Making of Provisional Protheses. (Ueber die Verwendung des Leimes in der orthopädischen Werkstätte.) R. Werndorff.—p. 16.
92 Exposure to Tuberculosis during the War. (Ueber tuberkulöse Exposition und exogene tuberkulöse Infektion unter den besonderen Verhältnissen des Krieges.) H. von Hayek.—p. 29. Continued.

86. **Abdominal Wounds.**—Pribram reiterates that so many men with abdominal wounds succumb in the course of the month after the injury that recovery under conservative measures alone is extremely rare. The patient may even feel quite well for days or weeks, as the most dangerous processes may run a symptomless course for a time. Intraperitoneal fecal abscesses may cause no symptoms except an evening rise in temperature, but roentgenoscopy may locate them. A typical laparotomy examining the whole intestine is too often fatal at this stage; small incisions are better, at the points where trouble is suspected. Immediate suture is preferable when the small intestine has been injured, but with the large intestine it is enough to expose the fistulas. They generally heal spontaneously. Access to a wound of the large intestine may be better from the rear; while injury of the colon flexures is best reached by resection of the corresponding ribs. Drainage toward the back is recommended but to drain the small pelvis, the patient should lie prone on the abdomen, or the drainage should be into the rectum. Spinal and local anesthesia render excellent service. These recommendations are based on analysis of 161 secondary operative cases of war wounds of the abdomen, with eighty-two recoveries.

87. **Tardy Tetanus.**—In the case reported 128 days had elapsed since the injury and the man was apparently in sound health, when, without any cause that could be discovered, tetanus developed. After a prolonged course, with injection of 400 antiserum units, the tetanus subsided. A month later the scraps of shell in the tissues were removed and at once the tetanus flared up again, but in a mild form for five days, and since then the man, an Italian prisoner of war, has been in good health. Some of the mice inoculated from the tissues around the shell scraps developed tetanus.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 7, XXXVIII, No. 2, pp. 17-32

93 *True Significance of Eosinophilia in the Mild Anemias of Schoolchildren. F. Scaroni.—p. 19.
94 *Trauma and Locomotor Ataxia. E. Terrile.—p. 20.

January 11, No. 3, pp. 33-48

95 Anchilostoma or Anguillula. E. Bertarelli.—p. 33.
96 Symptoms Induced by Compression of Trunk Nerve from Traumatic Enlargement of Vessels. C. Mantelli.—p. 34.

93. **Eosinophilia in Anemia of Schoolchildren.**—Scaroni gives the particulars of examination of forty-two schoolchildren all with more or less anemia. The eosinophils ranged from zero to 25.5 per cent., and in every case with eosinophilia over 3, 7 and 12 per cent. ascarides or trichocephalus eggs were found in the stools and also in a number with eosinophilia as low as 4 per cent. School anemia was thus shown to be the work of helminths in all but twelve of the forty-two cases.

94. **Trauma and Locomotor Ataxia.**—Terrile's patient was a man of 65 in the initial phase of tabes when an industrial accident materially hastened and aggravated its course.

Policlinico, Rome

January 14, XXIV, No. 3, pp. 73-88

97 Treatment of Septic Wounds. (Ferite settiche.) L. Silvestrini.—p. 73.
98 *Rational Constitution of Local Boards of Health. T. Gualdi.—p. 78.

Supplementary Number, pp. 105-128

99 Hysteria with Sciatica; Two Cases. E. Trocello.—p. 105.
100 Eczema in Children, Acidosis, and Calcium Treatment. M. Famini.—p. 110.

98. **Rational Constitution of Boards of Health.**—Gualdi states that Italy is proud of the fact that she stands at the head of the other nations of Europe in legislation on matters of public health. From 1888 to date there has been systematically organized a wise system for public health matters which has worked well through the years and even during the upheavals of the war. The central administration, the general board of public health, watches over the entire country and intervenes wherever there is a menace of epidemic disease. It also expends most wisely the funds appropriated by the state for hygienic purposes, carrying on successful campaigns against the chronic scourges of the country. But aside from the great central administration, matters are far from satisfactory. The local boards of health, even when in charge of capable hygienists, are suffocated by formalism and political opportunism, without any means for experimental control. Outside of the cities, he says, conditions are actually medieval, and he urges that the local boards of health should be abolished and that each district should have a branch of the central public health service.

Riforma Medica, Naples

1916, XXXII, No. 46, pp. 1257-1284

101 Diarrhea and Dysentery among the Troops. G. Izar.—p. 1257.
102 *Test for Sugar in Urine and Cerebrospinal Fluid. A. Martiri.—p. 1264.

No. 47, pp. 1285-1312

103 Action of Fatigue Toxins on the Central Nervous System and on the Blood. L. Ferrannini and S. Fichera.—p. 1285.
104 Intoxication from Asphyxiating Gases. P. Sisto.—p. 1290. Conclusion.
105 Antimeningococcus Serotherapy. A. Montefusco.—p. 1294. Commenced in No. 46, p. 1267.

102. **Dosage of Sugar in Urine and Cerebrospinal Fluid.**—Martiri thinks that the method he describes obviates certain disadvantages of the Fehling technic. He adds the urine to the reagent. The latter is a mixture of 1 c.c. of Fehling's first solution, with 1 c.c. of the second Fehling solution, and 10 c.c. distilled water, heated to boiling point. Then he adds 4 or 5 c.c. of concentrated ammonia and keeps the fluid boiling gently. Then, with the other hand, he drops in the urine from a 1 c.c. pipet graduated by hundredths. He adds the urine very cautiously so that the decoloration reaction is very distinct. As the 2 c.c. of the Fehling solution are reduced by 0.01 gm. of sugar, the amount per liter can be estimated by dividing the number of cubic centimeters in the liter by 0.01, and dividing the quotient by the numbers of hundredths of a cubic centimeter required for the reaction in the test tube

$$n : 0.01 :: 100{,}000 : x$$

$$x = \frac{1000}{n}$$

With the cerebrospinal fluid, the quantities of the reagent must be only one twentieth of the above amounts.

Brazil-Medico, Rio de Janeiro

January 20, XXXI, No. 3, pp. 17-24

106 Beriberi or Beriberic Syndrome. C. Fraga.—p. 3. Continuation.
107 *Retention of the Placenta Treated by Injecting Saline into the Placenta through Umbilical Vein; Two Cases. D. von Bassewitz.—p. 21.

107. **Retention of the Placenta Treated by Gabaston's Hydraulic Method.**—Instead of Credé expression or other manual method, Gabaston fills up the placenta with saline, injecting it through the umbilical cord. As the placenta thus becomes distended, it is liable to stimulate the uterus to new contractions, while the fluid within and accumulating behind the placenta aids in separating and facilitating its expulsion. This "hydraulic method" may produce the desired result in a few minutes. In the first of the two cases reported here by Bassewitz, the atony of the uterus was marked, but under the injection of the saline from a can 1.5 meters above the level of the bed, the uterus began to contract vigorously when 800 c.c. of saline had thus been infused. Within fifteen minutes the placenta was spontaneously expelled. In the second case, notwithstanding injection of 4 liters of the fluid, no effect was apparent, and the placenta was removed by the protected hand, the uterus having been drawn out to the vulva with forceps. This case teaches that this method is of little if any use with merely partial lateral separation of the placenta, but it can be counted on for prompt and certain effect in cases of total retention of the placenta from inertia of the uterus, or in cases of abnormal adhesion between the fetal and the maternal placenta. Bassewitz warns that this hydraulic method might do great harm in case of tubal attachment of the placenta, as the fluid might traverse the tube and enter the abdominal cavity.

Semana Medica, Buenos Aires

XXIII, 1916, No. 47, pp. 511-538

108 Lymphocytosis in Syphilis. C. P. Mayer and A. C. Gourdy.—p. 513. Continuation. See abstr. 73, p. 668.
109 *The Milk Supply in La Plata. (La leche de consumo en La Plata.) G. B. Cavazzutti and E. D. Cortelezzi.—p. 515.

No. 48, pp. 539-582

110 *Tuberculin Therapy Applied in Diagnosis of Tuberculosis. (La prueba diagnostico-terapeutica a la tuberculina. Nuevo metodo vacunoterapico aplicado al diagnostico.) J. J. Viton.—p. 539.
111 Vaccine Therapy of Gonococcus Infection. (Estadistica y tratamiento de la gonococcis por el Haptinogeno Gono.) H. Dasso. —p. 543.
112 Prophylaxis of Criminal Abortion. O. L. Bottaro.—p. 548.
113 No Foundation for Alleged Antitoxic Action of Hypophysis Extracts. B. A. Houssay and L. Giusti.—p. 559.
114 Anatomy of the Larynx. (Contribucion al estudio de los ventriculos de Morgagni et sus apendices.) A. S. Lagomarsino.—p. 565.
115 Vaccine Therapy of Pneumonia in Rural Districts. (El Haptinogeno Mendez en el medio rural.) J. M. Riera.—p. 569.
116 *Improved Technic for Embalming. (Nuevo procedimiento para la conservacion de los cadaveres.) V. Delfino.—p. 571.
117 Vibratory Plasmogenesis. A. L. Herrera.—p. 572.

109. **The Milk Supply at La Plata.**—This article with eighteen illustrations shows conditions prevailing in the La Plata region and outlines the reforms to be striven for.

110. **Vaccine Diagnosis and Therapy of Tuberculosis.**—Viton gives minute doses of tuberculin as a means of differentiating the cause of symptoms in puzzling cases. If tuberculosis is responsible for the symptoms, a pronounced change for the better is manifest even under these minute doses, and the tuberculin treatment can then be continued and amplified. He calls this the diagnostic-therapeutic tuberculin test, and extols its advantages over the tuberculin skin and other local tests. There are no contraindications or by-effects from these minute doses, while the favorable modification under them is often remarkable. He uses a ten-millionth or fifty-millionth solution of the tuberculin, usually taking 1 c.c. of ten-millionth solution and diluting it in 4.5 c.c. of sterilized water with a little of a 0.25 per cent. solution of phenol. Injecting 1/20 c.c. of one of these solutions, he watches the temperature, the weight and the general and special phenomena. If no change is apparent, he repeats the injection the sixth or seventh day, increasing the dose by twentieths of a cubic centimeter, and continuing this at intervals of six or more days up to fifteen days. With improvement under the tuberculin, confirming the specific nature of the trouble, the tuberculin is then continued as a therapeutic measure. These minute doses, he says, do not induce any reaction but they gently and insinuatingly start the production of antibodies. This method, he adds, has not only revealed tuberculosis in many puzzling cases, but has resulted in its cure, and he commends it, as he says, *con verdadero entusiasmo.*

116. **Preservation of Cadavers.**—Delfino comments on Dubois' method of dehydration of the tissues as a simple and effectual method of mummification. All that is necessary is to inject freely into the body cavities and tissues certain substances, such as ether, benzine, etc., which attract the water out of the tissues.

Siglo Medico, Madrid

January 13, LXIV, No. 3292, pp. 17-32

118 Etiology and Pathogenesis of Leukemic Processes. G. Pittaluga. —p. 17.

January 20, No. 3293, pp. 33-48

119 *Diabetes Insipidus. G. Marañon.—p. 36.
120 Treatment of Ulcerated Varicose Veins in the Leg. (Terapeutica dermatologica: ulceras de las piernas.) E. de Oyarzabal.—p. 39.
121 Caffein Citrate in Strangulated Hernia. D. B. Gil.—p. 41.

119. **Diabetes Insipidus.**—Marañon's experience with three cases has confirmed the modern views as to the importance of the pituitary body in the genesis of diabetes insipidus. In one boy of 13 the diabetes insipidus developed in a pronounced form a few days after he had been shot in the head, the bullet lodging at the sella turcica and blocking the egress of the pituitary secretion. He voided up to nine liters of urine a day but the amount dropped back to normal for twenty-four hours after injection of 1 c.c. of hypophysis extract. No other measures had any influence on the polyuria. Necropsy confirmed the radioscopic findings that the bullet had merely blocked the outlet, not injuring directly, not even compressing the lobes of the hypophysis, but interrupting its connection with the bottom of the ventricle. Syphilitic lesions of the hypophysis give the best prognosis for diabetes insipidus. As soon as normal conditions for the passage of the hypophysis secretion into the cerebrospinal fluid are restored, true diabetes insipidus subsides spontaneously. The pancreas may be diseased at the same time, which explains cases in which the insipidus merged into true diabetes mellitus. There is probably both a nervous and an internal secretion factor involved. Hypophysis treatment is indicated in every case of true diabetes insipidus. The injection of 1 c.c. answers the purpose and the effect lasts for thirty hours, according to Marañon's experience. The injections have to be kept up indefinitely, but there is reason to assume that if the hypophysis function is not entirely abolished, the organotherapeutic stimulus may rouse it to approximately normal functioning. This occurred in one of his cases. Restriction of fluids never seemed to have much influence on the polyuria.

Russkiy Vrach, Petrograd

1916, XV, No. 44, pp. 1033-1056

122 Unpublished Letters from Pirogoff, 1840. S. Y. Shtraikh.—p. 1033.
123 *Anesthesia under the Influence of Expulsion of Blood from the Region by a Tourniquet. (Anestezia pod vlyaniem kroveostanav. zhguta.) N. N. Petroff.—p. 1036.
124 *The Question of Inherited Infectious Diseases. (O nasliedstvennosti pri zarazhnikh zabolievaniyakh.) A. A. Yurgeliunas—p. 1038.
125 Gold-Potassium Cyanid in Local Treatment of Lupus. (O miestnom liechenii volchanki aurum kali-cyanatum.) A. K. Khitrovo.—p. 1043.
126 *Dietetic Treatment of Rachitis. I. A. Shabad.—p. 1047. Continuation.
127 Hot Air Jet in Treatment of Suppurating Wounds. (Liechenie gnoinikh ran dushami goryachago vozdukha.) P. I. Baradulin. —p. 1049.
128 Retractors for Amputations. A. N. Treguboff.—p. 1051.

123. **Anesthesia Below the Tourniquet.**—Petroff remarks that even the ancients and the medical men of the Middle Ages had noticed that pain was not felt so much after the root of the limb had been tied around to arrest bleeding after an injury. But the danger of damaging the nerves and other tissues by the pressure and the unreliability of the results have always prevented utilization of this method of controlling pain. Braun concluded from the result of experiments on himself that the danger of paralyzing the nerve is too imminent to allow the use of the method in the clinic. Petroff rejects his conclusions, however, as Braun ligated merely fingers in his tests. The nerves were squeezed against a bone background, in which respect the conditions differed materially from those with a tourniquet applied to the root of a limb. Numbness and other signs of injury afterward must be referred to this pressure against the bone background.

At the same time, occasions may arise in war in which a tourniquet has had to be applied to arrest hemorrhage, and the wound and loss of blood have reduced the strength. The nerves have lost temporarily the faculty of transmitting sensations. In one such case the tourniquet had been in place for several hours before the shattered leg could be amputated at the middle third. The man was extremely weak, the pulse scarcely perceptible, when brought to the hospital. After injection of saline, the leg was amputated without the man's feeling it. In another case described the constriction had not been very tight and the circulation had not been entirely arrested, and only the superficial tissues were anesthetic. In short, Petroff reiterates, there is no need to inflict general or local anesthesia on persons whose limb is already completely anesthetized. The possibility that this may be the case should not be forgotten.

124. **Inheritance of Infectious Diseases.**—Yurgeliunas reiterates as the conclusion of his long study that direct transmission of infectious diseases by the germinal route, according to the conception of the older authors, is no longer admissible. Transmission of syphilis by way of the placenta is possible but rare. The heredity with infectious diseases seems to be of a more general character, a tendency to dystrophic processes.

126. **Dietetic Treatment of Rachitis.**—Shabad's conclusions have already been given in these columns, March 10, p. 815.

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129 *Deforming Juvenile Osteochondritis. H. Timmer.—p. 3.
130 *Chronic Tachycardia and Its Treatment. (Over chronische tachycardie en de beteekenis der extracardiale hartzenuwen.) E. W. G. Vinnis.—p. 11.
131 Treatment of Diphtheria Bacilli Carriers. J. L. A. Peutz.—p. 17.
132 The Anticholera Campaign in the Netherlands East Indies. O. L. E. De Raadt.—p. 22.
133 *Falling of the Hair as Sign of Latent Tetany. (De area Celsi als verschijnsel van latente tetanie.) G. C. Bolten.—p. 24.

129. **Juvenile Deforming Osteochondritis.**—Timmer's first patient was a boy of 7 who had been limping for some time. Roentgenographs showed the findings characteristic of Perthes' disease. There has been gradual improvement during the year since. This affection has a favorable prognosis. It has been called variously quiet hip disease, pseudocoxalgia, epiphyseal coxa valga, and deforming juvenile arthritis. Trendelenburg's sign is almost always present. Notwithstanding the clinical improvement, the roentgenograms show that the epiphysis grows flatter and flatter and spreads and the broad flat head merges into a short, thick neck. The symptoms may simulate a tuberculous process in the neck and he discusses other affections liable to be confused with it. There is no pain or tenderness with this Perthes' affection. The gait resembles that with congenital luxation of the hip joint. The limb can be flexed and extended freely, but abduction is much restricted and rotation a little. Perthes was misled into operating in his first case, suspecting tuberculosis, but found no signs of inflammatory infiltration. The abnormal conditions were the shape of the head, the unusual thickness of the cartilage, and the islands of cartilage tissue in the spongiosa of the head. Certain cases that have been published with illustrations as cases of tuberculous trouble are now considered to have been of this type. Timmer does not discuss the treatment.

130. **Chronic Tachycardia.**—Vinnis reports a case which throws considerable light on the questions as to the limit of a rapid pulse rate compatible with health of the heart muscle, and whether the influence of the nervous system, as in the acceleration of the rate under emotional stress, is an adaptation phenomenon or an actual injury. His patient was a man of 50 who had had a pulse of 140 for three years. There was an old history of acute articular rheumatism and syphilis, but the heart did not seem to have been touched, and the rapid pulse was ascribed to nervous influences. The tracings of the jugular and radial pulse showed a chronic regular tachyatria, as Vinnis calls it, actual auricular flutter, the ventricle rate scarcely one to two of the contractions of the atrium. The cyanosis, dyspnea and low blood pressure called for treatment, although the general appearance was healthy. Vinnis gave digitalis in large doses, aiming to make the pulse irregular, hoping to transform the tachyatria into auricular fibrillation. Then on complete suspension of the digitalis a normal heart action returns. This had been successful in about half the cases in which he had given this treatment, and it proved successful in this case also. The man was given a daily dose up to 400 mg. of pulverized digitalis. The pulse became irregular but there was no actual auricular fibrillation. The stomach rebelled against these large doses, and after a pause, the digitalis was given again up to 150 mg. In a few days, with an auricle beat of 280, the ventricle beat gradually settled down to a regular 70, and the general condition improved, the area of heart dulness grew less and there was no further dyspnea or cyanosis. When the rhythm had thus become a regular one-to-four beat, a dose of 120 mg. digitalis was enough to maintain it, except under emotional stress, when a one-to-two rhythm returned. These attacks of a ventricular 140 beat grew rarer, but finally one occurred of exceptional intensity and duration, and then the digitalis was completely suspended. When this attack subsided, the desired result had been accomplished, as the heart returned to a regular, normal rhythm, both auricle and ventricle presenting a regular 65 or 85 beat. This normal rate has persisted during the year to date, and the man has attended to his business without further disturbance. Vinnis calls attention to the case not only as a model of systematically planned and carried through treatment, but from a more general clinical point of view, as the patient felt that he was cured as soon as the rhythm had become the one-to-four beat. The physician did not regard it as a cure until the rhythm had become one-to-one, but the patient felt no inconvenience from the fourfold auricle beat, and he likewise seemed to feel no inconvenience from the absence of any influence on the heart from the central nervous system. The case teaches that a heart beat of 140 can last for three years without inflicting permanent injury on the heart. Also that an auricle beat of 280 may cause no subjective disturbance. Also that when the ventricle beat is within normal range, the absence of chronotropic nervous influences may not be felt.

133. **Sign of Latent Tetany.**—Bolten describes two cases, one patient a boy of 9, the other a man in the forties. Both were healthy and apparently sound except for a positive Erb reaction characteristic of tetany. In both the hair suddenly began to fall out. The man became entirely bald and lost also his eyebrows and the hair on his body. The boy's hair also dropped out suddenly, mostly from the back of his head. Both were in good health at the time and since. The falling of the hair is evidently a trophoneurosis, but in these cases latent tetany—parathyroid insufficiency—seems the primary cause.

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134 *Gynecology at Christiania. (Kvindeklinikken i Kristiania.) K. Brandt.—p. 1.
135 *Case of Dwarfism from Achondroplasia. V. Magnus.—p. 58.
136 Case of Aphasia, Adiposis and Stunted Growth. C. Schiøtz.—p. 76.
137 *Cancer in Liver of One-Year Babe. T. Frølich.—p. 78.
138 *Calcium Deposits in Subacromial Bursa. J. R. Natvig.—p. 83.
139 *Symptoms, Diagnosis and Treatment of Acute Cholecystitis. N. Paus.—p. 89.

134. **The New Clinic for Women at Christiania.**—Brandt gives a historical sketch of gynecology at Christiania, and describes the newly finished women's clinic which is on the spacious parklike grounds of the public hospital. Thirty-one full page illustrations are given, and a number of floor plans, including the handsome residence built nearby, also on the grounds, for the physician in chief. In connection therewith, Brandt gives a historical outline of the development of obstetrics. Until Paré introduced podalic version in 1550, obstetrics had been left entirely in the hands of women. It was considered beneath the dignity of a professional man to have anything to do with the childbirth, and when he was summoned it was merely to prescribe for the mother or do embryotomy. As complications calling for these so often proved fatal, the physician's visit was usually held responsible, and it is easy to understand that the physician was a persona non grata at a childbirth.

135. **Achondroplasia Dwarfism.**—Magnus gives an illustrated description of a female dwarf, 22 years old, who showed remarkable tolerance for levulose, 100 gm. levulose for a weight of only 37 kg., nearly twice the usual amount tolerated by an adult weighing nearly twice as much. This and the exceptionally small sella turcica suggested that the dwarfism was the result of defective development of the hypophysis. The growth was apparently normal till the age of 9, when chronic bronchitis became installed. At 22 she applied for relief from intolerable headaches and was relieved by palliative trephining first on one side and then on the other. Magnus reviews the literature on dwarf growth, citing as the most important, the monograph on dwarfism recently issued by the Eugenics Laboratory at London.

137. **Cancer in Infant's Liver.**—Frølich quotes Philipp's compilation of eighty-seven cases of cancer in children; 46 per cent. were in the digestive tract. The number includes twelve cases of carcinoma of the liver; in two of this group the ages were 3 and 14 months. Merkel collected 111 cases, including thirteen with cancer of the liver; seven were in children under 10. Frølich then describes a case confirmed by microscopic examination after an exploratory laparotomy. The first symptoms were noticed when the babe was 9 months old, coming on in the midst of apparently perfect health, and proving fatal in five months.

or a generalized toxic rash, simulating an exudative erythema of persistent nature, may occur. Fortunately, these intense, delayed reactions are rare. Great caution must be exercised in the future treatment of this class of patients. Finally, renal disturbances, characterized by suppression of the urine, due to the deleterious action of the arsenic on the renal vessels, may result.

Untoward results are closely associated with reactions, and those exciting chief interest are disturbances of the liver, kidneys and nervous system, and cases of general exfoliative dermatitis. A number of fatalities are on record due to the deleterious action of the drug on the liver. Neurorecurrences have been largely eliminated through more intensive treatment.

Leredde and Jamin[2] believe that the cerebral accidents which have given so much anxiety are explainable on the grounds of the Herxheimer reaction. In an intensive study of the causes of death following injections of salvarsan, they state that two theories are advanced: first, genuine intolerance; second, that predispositions due to organic lesions preexisting are created by syphilis itself, and give rise to reactions provoked by the too energetic therapeutic reaction. They further state that Milian is the strongest supporter of the theory of intolerance, and maintains that the cerebral lesions which are found at necropsy (serous apoplexy) or the nitroid crises are due to the hypo-alkalinity of the injection. He says that certain patients are predisposed to these crises because of hypo-alkalinity of the blood. Against this is cited the fact that certain patients exhibit nitroid crises during the course of a neutral neosalvarsan injection.

Leredde and Jamin found, in a study of forty cases of death with epileptiform seizures, that only one was accompanied during the injection by this nitroid crisis. The principal argument of Milian is that salvarsan is a vasodilator; but Leredde believes this is insufficient reason to attribute the cerebral accidents to the drug. Vasodilatation determines the reaction of Herxheimer in the areas of syphilitic lesions. In the reaction of Herxheimer, the hypothesis is that death follows a meningeal or cortical reaction due to excessive and sudden destruction of spirochetes following an excessive dose of salvarsan. In the series of forty cases, spinal puncture was performed during life in twelve cases, and ten of these showed pathologic findings.

Leredde and Jamin believe that neither the theory of ordinary intoxication nor that of intolerance will explain these facts, which are readily explainable on the basis of the Herxheimer reaction. Twenty-nine of the forty cases were examined postmortem, and in fourteen of the twenty-nine, important nervous lesions were found.

Eight deaths occurred during the primary period, fifteen during the secondary period, and seventeen in old syphilis.

In six cases, death occurred after the first injection; in twenty-five, after the second; in six, after the third; in one, after the fourth; in one, after the fifth, and in one after the sixth.

Certain errors of technic are to be found. The most frequent one is the shortness of the interval between the injections: two days in one case, three in another, four in another, and in one case the injections were given daily. If intolerance were the cause of death, the number of cases of death should increase with the number of injections. It would be the same if it were ordinary intoxication. Finally, if anaphylaxis were concerned, one cannot understand how death should follow the first injection. It must be noted that in a few cases death has followed a very small dose, notably in one case of Wechselmann's, who gives an excellent description, comporting with the theory of the reaction of Herxheimer. In some of the cases it must also be noted that the initial dose was the maximum dose.

Leredde and Jamin gave 3,777 injections from 1910 to 1913. Three-fourths of these averaged a dosage of from 0.6 to 0.9 gm. of neosalvarsan. Out of 632 patients, one patient died following 0.15 of neosalvarsan. In this patient, the general paresis with the cerebral lesions presented the necessary conditions for death. In this case neither intoxication nor intolerance explains the cause of death. The explanation is that in this particular case the dose, even though small, was too high for the patient.

Meirowsky and Kretzmer,[3] in a review of 109 fatal cases following salvarsan injections, state that 41 per cent. occurred in the secondary period, three fifths of which resulted from encephalitis. Forty-five per cent. of these occurred in cases in which the dose exceeded 0.5 gm. Sixty-six per cent. of the patients received doses of over 0.5 gm. They conclude that the size of the dose, therefore, is the most important factor in the causation of encephalitis, the danger decreasing in proportion to the duration of the interval between injections.

In the study of the cause of reactions in general, most observers, during the earlier period of the use of salvarsan, started with the hypothesis that all salvarsan was identical, and that trouble arose from faulty technic, individual susceptibility, or so-called anaphylaxis. That faulty technic was responsible for much trouble was proved when a marked reduction in reactions occurred on the constant use of freshly distilled water. On the question of so-called anaphylaxis, the statistics of Leredde[4] throw some light. He stated that, in 1910, sixteen deaths occurred out of 50,000 injections; in 1911, ninety-two deaths among 800,000 injections; in 1912, sixty-six deaths among 1,280,000 injections, and in 1913, thirty-seven among 2,000,000 injections. Of these, 104 followed the first injection, and only three occurred subsequent to the fourth injection. These results testify strongly against so-called anaphylaxis.

In a series of 8,000 injections, Fordyce,[5] in 1914, had not encountered an anaphylactic reaction.

In the clinic of Bordeaux, Morin and Joulia[6] report thus on reactions: During a period of nine months, 192 injections were given to 100 patients. Serious reactions were few, but moderate reactions were quite frequent. Febrile reactions were studied in eighty-seven cases. Fifty-two of these patients had fever in the course of the treatment. It usually occurred after the first injection. Generally, it was very slight, but in a few cases severe. The number of reactions in men and in women are given in the accompanying tables.

On reading Table 1 horizontally, it is seen that after the first injection th[illegible] ctic[illegible] of 57; after the second inje[illegible] 1 [illegible] ns out of 41; after the thirc[illegible] were but 7 reactions in 22 [illegible] oulia conclude that the chances of elevation of temperature diminish with the number of injections.

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[2] Leredde and Jamin: Bull. de dermat. et de syph., January, 1914.

[3] Meirowsky and Kretz[illegible] der Haut [illegible] Geschlechtsl[illegible]

[4] [illegible] ull. [illegible]

[5] [illegible] our.

[6] [illegible]

It is evident from these two tables that febrile reactions are less frequent in women than in men. All severe reactions followed the first injection, and after the second injection there was no severe reaction in any case.

In one of our series of 253 injections noted elsewhere in this paper, forty-three were followed by reactions. Of these, seventeen, or 40 per cent., occurred after the first injection, when anaphylaxis could not be considered. While anaphylaxis must be recognized, it must play but a small rôle in the production of reactions. Individual susceptibility must be recognized, and undoubtedly accounts for a moderate number of reactions. The most important consideration is the question of varying degrees of toxicity of the drug as we use it.

TABLE 1.—NUMBER OF REACTIONS IN MEN

	Severe Reaction	Moderate Reaction	Mild Reaction	No Reaction
Injection 1.......	16	17	8	16
Injection 2.......	3	11	2	25
Injection 3.......	1	2	4	15
Injection 4.......	0	1	0	10

In a series of marked reactions recorded by Dr. Mitchell and myself,[7] a few months ago, six severe reactions occurred at once with a given lot of salvarsan. Anaphylaxis, so called, could be ruled out of these, as in one of the group it was the patient's first treatment, and in another it followed the second treatment. Individual susceptibility could hardly account for them, as four had shown no previous susceptibility. Faulty technic could not be considered, as it fulfilled the requirements now demanded. We concluded, therefore, that toxicity was the factor. One of the ampules of this lot was forwarded to Dr. Schamberg, together with an ampule of a lot with which we had had no difficulty, with the request that his laboratory test these as to toxicity, which he kindly acceded to, with the following result: Sixty mg. per kilogram of body weight, which is the amount demanded by this laboratory as the *dosis tolerata* of its product before it is sent out, were injected into two rabbits. One died after two days, the second after five days. The control ampule, which had given us no trouble, was similarly injected into another animal, with no untoward results.

We also asked for the animal results in a certain control number we had used of arsenobenzol without reactions, and the answer was that the animal used for this lot lived indefinitely, showing that the toxicity of this also was within the limits of animal safety.

We believe, therefore, that the answer to the question of cause in this group of reactions is increased toxicity in this particular lot, the animal experiments confirming the clinical results. Whether or not animal experimentation will disclose the fact in all instances that a given lot is likely to produce reaction is as yet an unanswered question; but the fact that the foregoing lot, which was apparently unusually toxic in man in one series, was toxic beyond the limits of animal safety as demanded by the Schamberg laboratories is significant.

Through the courtesy of Dr. Schamberg, the following facts are taken from an unpublished manuscript of Dr. Schamberg and his associates, John A. Kolmer and George W. Raiziss.[8] The main facts embodied in the work, however, were presented at the meeting of the American Dermatological Association in 1916. The complete paper is to be published soon.

In a careful experimental study of the causes of reaction, Schamberg believes that too much stress has been laid on errors of technic and personal factors, and too little attention has been paid to the study of causes related to the drug itself. He states that salvarsan is an extremely complex substance. During its elaboration, many intermediate products are prepared. On the purity of these the purity of the final compound depends to a degree. During this complicated process, certain substances in addition to salvarsan occur. As salvarsan cannot be purified by repeated crystallization, it cannot be regarded as an absolutely pure compound. One of the dangerous by-products which may occur from oxidation or insufficient reduction is amino-oxyphenyl arsenoxid, which is about twenty times more poisonous than salvarsan. The amount of this material in the commercial product is usually less than 1 per cent., the best preparations containing, according to Ehrlich, from 0.5 to 0.8 per cent.

The immediate reactions, which are vasomotor, are due, according to Schamberg, to something in the drug which induces a paresis of the blood vessels, characterized by dilatation, and not infrequently by leakage of serum into the tisues. These symptoms are regarded by him as vasoparetic in character. From various experiences, he suspects that they are produced by traces of an impurity in the drug, which he has designated as "Substance X." On the comparative amount of this material depends the severity of the early reactions.

Schamberg further states that there is some reason to believe that preparations which give the best toxicity tests in animals are prone to give the most satisfactory clinical results as regards reaction, but he is not convinced that Substance X can always be discovered by its toxicity record on animals. Some of his experiments have caused him to reserve judgment on this point for the present.

TABLE 2.—NUMBER OF REACTIONS IN WOMEN

	Severe Reaction	Moderate Reaction	Mild Reaction	No Reaction
Injection 1.......	3	4	3	18
Injection 2.......	0	3	3	13
Injection 3.......	0	0	0	11
Injection 4.......	0	0	0	3

Regarding neosalvarsan, in the report mentioned above we stated that, in view of an increased number of immediate, sharp reactions, we believed the supply then being used was also more toxic than previous lots. I have recently gone over some of our records with the following results:

In a series of 253 consecutive injections of neosalvarsan given to eighty-six patients, before the temporary withdrawal of the drug from the market, thirty-two were followed by reactions of varying degree, none immediate, and 210 were followed by no reaction, a total of 17 per cent. of the injections presenting reactions.

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[7] Ormsby, O. S., and Mitchell, J. H.: Arsenobenzol in the Treatment of Syphilis, The Journal A. M. A., March 18, 1916, p. 867.

[8] Schamberg, Kolmer and Raiziss: American Dermatological Association, Washington, D. C., May 8-10, 1916.

In another series of 209 consecutive injections of neosalvarsan, given to eighty-two patients after the drug was restored, twenty-four were followed by reactions (many immediate), and in 185 no reactions occurred, a total of 11.5 per cent.

In a third series of 258 injections, given to eighty-nine patients during the four months ending February 15, 230 were followed by no reactions, and twenty-eight, or about 10 per cent., by reactions, chiefly immediate. These statistics apparently disprove increased toxicity as a whole, as the percentage of reactions in the first group was 17 per cent. before the temporary withdrawal, and 11.5 per cent. in the first group immediately after its restoration, and 10 per cent. recently. However, in view of the fact that the recent reactions were immediate and sharp, it still appears that certain lots of neosalvarsan are also more toxic than formerly, but not sufficiently so to cause anxiety.

In a large experience with arsenobenzol prepared by laboratories under the direction of Dr. Schamberg, we encountered fewer reactions than with salvarsan or neosalvarsan.[7]

CONTRAINDICATIONS

When salvarsan was first used, warning was directed particularly against giving the drug to patients with disorders of the kidneys, heart, vascular system and eyes. With increased experience, few of the original contraindications have remained as such. Where organic changes have occurred in any vital organ, the treatment should be given with care and always initiated with a small dose.

PRECAUTIONS

In order to safeguard the patient to be treated with salvarsan, it is absolutely essential that the technic be correct. This includes the use of freshly distilled and sterilized water for making the sodium hydroxid, the sodium chlorid and the salvarsan solutions.

The initial dose should always be small: 0.1 or 0.2 gm. of salvarsan, or 0.2 or 0.3 gm. of neosalvarsan. Should an idiosyncrasy be present, serious results are thus avoided.

It is well to have the patient on a restricted diet immediately preceding the injection, and elimination should have been promoted by catharsis. In the absence of the contraindications noted, this procedure offers most promise for good results.

CLINICAL RESULTS

The remarkable clinical achievements of salvarsan need not be considered in detail. The rapid healing of infectious lesions of the skin and mucous membranes, and the gain in weight and general health are too well known to need emphasis here.

As has been previously stated, a definite technic cannot be outlined, as the patient has to be considered individually, as well as the disease with which he is suffering, and the stage and severity of the latter. In a review of the enormous literature of the subject, the general trend now appears to be to give salvarsan and mercury in courses of from five to eight injections of the former and from twelve to twenty injections of the latter, repeating the courses at intervals of from six to eight weeks and as many times as appears necessary in individual cases. The method employed by us, which follows, is perhaps an average of that used in various parts of the world.

We divide our treatment into courses of from five to eight injections of salvarsan and twelve to twenty injections of mercury, or the equivalent of the latter in inunctions. The interval between salvarsan injections is from seven to fourteen days, while the mercurial injections are given every second day, if a soluble salt is used, and weekly if an insoluble one is employed. The soluble salt usually selected is mercuric chlorid, in dosage of one-fourth grain, and mercuric salicylate in dosage of from 1 to 2 grains.

In the chancre stage, treatment is instituted with salvarsan, and one course is usually sufficient. Many of these patients have not developed a positive Wassermann and have remained free from symptoms for some years.

In active syphilis, mercury precedes salvarsan, to prevent neurorecurrences, and three courses are given, with a rest of from six to eight weeks between courses. If after the termination of these the reaction remains negative a year, a provocative treatment is given, when, if not followed by a positive reaction and the spinal fluid is found normal, a prolonged rest is given.

In tertiary and latent cases, several courses are given, if necessary, together with potassium iodid.

In involvement of the nervous system, intravenous medication with salvarsan, together with intramuscular mercurial injections, precedes intraspinal medication. In the latter, we have employed only the Swift-Ellis method of injecting salvarsanized serum. We have not used the Ogilvie[9] method of direct salvarsan injections, nor have we used intracranial injections. The latter methods have been efficient in the hands of others. We insist on energetic treatment early, and believe that many of the failures are directly attributable to insufficient treatment. In a few selected cases, we have employed the intensive method of Pollitzer with good results, but cannot accept it as routine.

In a recent report from the clinic of Professor Jadassohn (Bern), Nägeli[10] states that 900 syphilitic patients were given 7,000 injections of salvarsan and neosalvarsan with no fatalities and few reactions. The initial dose employed in this clinic is always small: 0.1 or 0.2 gm. of salvarsan and 0.15 or 0.3 gm. of neosalvarsan, and as a maximum dose 0.3 gm. of salvarsan in the case of women, and 0.4 gm. in the case of men, or 0.45 and 0.6 gm., respectively, of neosalvarsan. The absence of reactions in their cases is attributed to small dosage. The interval between injections averages one week, though in certain cases four days has been the interval. Injections of mercury, usually insoluble preparations, are added, and in certain cases potassium iodid also is used. They recommend repeating the dose before the Wassermann reaction becomes positive or before symptoms begin to develop.

Pollitzer[11] gives three injections of large doses of salvarsan at twenty-four hour intervals, followed by twelve mercurial injections. In secondary syphilis, three courses are given, with two month intervals between courses. In older cases, treatment is continued until the Wassermann reaction becomes negative, and subsequent to this two courses are given. After a year of negative Wassermann reactions, a provocative injection is given and an examination of the spinal fluid is made.

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[9] Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, The Journal A. M. A., Nov. 28, 1914, p. 1936.

[10] Nägeli: Corr.-Bl. f. schweiz. Aerzte, October, 1915.

[11] Pollitzer: Jour. Cutan. Dis., 1916, 34, 633.

Nicolas and Moutot,[12] in 9,000 injections, covering a period of three years, had two fatalities. In the group were 200 cases of primary syphilis, the chancre being of from three to thirty days' duration. These were treated with four or five injections, at eight day intervals, or with four injections, followed later by two more. Most had subsequent mercurial treatment. A few of this group had recurrences; two had reinfections. In secondary syphilis, they record many recurrences after eight injections. Among the cases, in addition to the two fatalities, were many reactions, a few with coma or epileptoid seizures, and three cases of generalized exfoliative dermatitis, two cases of optic neuritis, and six of labyrinthitis.

Goubeau[13] uses salvarsan, mercury and potassium iodid in all cases. In primary syphilis he recommends excision of the chancre, forty day treatment with injections of mercury benzoate, five injections of salvarsan, and lastly potassium iodid by mouth for forty days. Five of six cases were apparently cured by this method. In secondary syphilis, each period consists of five injections of salvarsan, followed by a series of mercurial injections, this followed by a period of potassium iodid by mouth. He rarely gives more than two such periods. In sixteen of twenty-four patients, symptomatic and serologic cure was obtained. Eight had recurrences. In thirteen latent cases treated by this method, all the patients were serologically cured, with no relapses in two years. Patients with hereditary and nervous syphilis were improved.

In a recent contribution, Fordyce[14] recommends the use of salvarsan and mercury in courses, each consisting of five or six injections of salvarsan, in dosage of from 0.3 to 0.5 gm. for men, and from 0.25 to 0.4 gm. for women, at intervals of from one week to ten days, together with from twenty to thirty injections of a soluble salt of mercury, repeated daily or every second day, or from ten to twelve of an insoluble salt, repeated weekly.

In primary syphilis, before the Wassermann reaction becomes positive, two courses are given. In secondary syphilis, three courses are frequently necessary. In tertiary and latent cases, mixed treatment with potassium iodid and mercury is frequently added. In visceral cases, he recommends salvarsan in small dosage.

Fordyce gives as criteria of a cure a negative Wassermann reaction for at least a year, continuing so after a provocative injection, and a normal spinal fluid, with certain exceptions. He urges energetic treatment in all cases.

COMPARATIVE VALUE OF SALVARSAN AND NEOSALVARSAN

In a study of comparative results with salvarsan and neosalvarsan, Whitehouse and Clarke[15] based conclusions on an experience of 317 injections of salvarsan to 104 patients, and 180 injections of neosalvarsan given to forty-six patients. They obtained nearly 20 per cent. more permanent negative results serologically with salvarsan than with neosalvarsan. Clinically, the drugs were equally efficient. They considered five doses of neosalvarsan equivalent in end-results to four of salvarsan. In this series, 20 per cent. of the cases under salvarsan showed reactions, as against 8 per cent. under neosalvarsan. Nelson and Harris[16] in the army service, state that in a period of nine months patients were each given five injections of neosalvarsan, combined with intensive mercurial treatment, with the result that 33.3 per cent. became negative, while 66.7 per cent. remained positive. In a second series of twenty-five patients, each given four injections of salvarsan, together with intensive mercurial treatment, 64 per cent. were made negative, while 36 per cent. remained positive. In other words, salvarsan produced double the number of negative reactions obtained with neosalvarsan. On these findings, they recommended the discontinuance of neosalvarsan and the exclusive use of salvarsan. On the other hand, in a recent study, Trimble and Rothwell[17] report a larger percentage of negative reactions with neosalvarsan than with salvarsan. In both instances, their proportion of negative reactions was very small. They conclude that neosalvarsan is superior to salvarsan, easier of administration, less likely to cause severe reactions, and produces a greater number of negative Wassermanns.

In the discussion which followed the reading of the latter paper, Schamberg stated that, basing his opinion on clinical observations, together with the use of the two drugs, salvarsan and neosalvarsan, in experimental trypanosomiasis, he believes that salvarsan is distinctly superior to neosalvarsan. Capelli,[18] as a result of experiments in rabbits, concludes that the antisyphilitic effect of salvarsan compared with neosalvarsan is as 5:4.

In our own work we have not made a careful comparison of results in any specified number of cases. It has been our impression that salvarsan was ultimately more efficient than neosalvarsan. In view of all the conflicting reports and opinions, it appears that the situation is as follows: Clinically, there is very little difference in the results between the two preparations; serologically, salvarsan appears more efficient. In other respects, salvarsan is more difficult to give, and it is followed more frequently by reactions; neosalvarsan is more convenient, requires much less care, and is accompanied by fewer reactions. Taking into consideration the advantages and disadvantages of each, it appears that for general use either can be properly recommended.

SUMMARY

Salvarsan and neosalvarsan are the most efficient drugs yet discovered in the treatment of syphilis. Alone they have completely eradicated the infection in early cases before the Wassermann reaction has become positive. The large number of reinfections testify to this fact. Yet even in these cases mercury is recommended as an adjunct.

In all other cases, mercury should always be an accompaniment of salvarsan, and in many cases potassium iodid is indicated, especially in the so-called tertiary and latent cases and in those involving the nervous system. The ability of potassium iodid to remove infiltrations, gummas and nodules, together with its marked effect on vascular implications, renders its use imperative.

The major number of reactions following the use of salvarsan and neosalvarsan are insignificant. The more serious ones are to be avoided, so far as possible, by an initial small dose to test the tolerance of the patient, by careful attention to details in administrative technic, by recognizing contraindications, and, in the case of early, active syphilis, preceding the salvarsan treatment with mercury, to prevent neurorecurrences; and finally, by giving sufficient treatment to control the disease. Emphasis must be laid on the latter statement, as much harm may be done by its apparent effect, the degree of relief placing the patient in a position of false security; therefore, sufficient treatment is demanded to prevent recurrences and relapses.

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[12] Nicolas and Moutot: Ann. de dermat. et de syph., July, 1914.

[13] Goubeau: Bull. de dermat. et de syph., March, 1914.

[14] Fordyce: Tr. Am. Phys. and Surg., 1916, **10**, 1.

[15] Whitehouse and Clarke: Jour. Cutan. Dis., 1913, **31**, 633.

[16] Nelson, Kent, and Haines, E. F.: Observations of the Results of Seven Months' Experience with Salvarsan in the Treatment of Syphilis, The Journal A. M. A., Dec. 26, 1914, p. 2277.

[17] Trimble, W. B., and Rothwell, J. J.: A Comparative Study of Salvarsan and Neosalvarsan in the Treatment of Syphilis, The Journal A. M. A., Dec. 30, 1916, p. 1984.

[18] Capelli: Dermat. Wchnschr., 1915, **61**, 907.

Many of the earlier cases, following insufficient treatment, of rapid onset of symptoms which ordinarily come late in the disease, such as nervous involvement and precocious tertiary manifestations, were eradicated by more salvarsan, and now should be entirely avoided by treatment of sufficient intensity and amount to control the disorder.

The treatment of syphilis with salvarsan and neosalvarsan has caused an intensive study over the entire world of the question of efficient management of the disease, to such a degree that great lessons have been learned and much good accomplished. Their ultimate value will require many more years to determine.

As to a choice between the two drugs, salvarsan and neosalvarsan, the extensive use of both proclaims their efficiency, so that individual circumstances with the physician and patient must decide which, under the circumstances, is to be selected. The apparent preponderance of opinion that salvarsan is more efficient is offset to a degree by the difficulties of its administration and the more frequent reactions following its use.

The problem of reducing toxicity to a minimum rests with the producers of the drug.

Concerning the dangers following the individual injections, many warnings have been given to exercise care after the fourth injection. The warning has not been accompanied by tabulated results showing proof of this contention. On the other hand, the statistics now available show that the major portion of severe reactions, untoward results and fatalities have followed the first injection, and that with subsequent injections these results were greatly decreased.

CONCLUSIONS

The efficiency of salvarsan and neosalvarsan is of such a high order, and the limitations are so comparatively few that they will probably hold an important place in the future treatment of syphilis. The clinical results are striking, and in addition their effect serologically is such that the question of their abandonment can be conceived only by the discovery of a more potent remedial agent.

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Seventh Sense.—Aristotle and his contemporaries were accustomed to distinguish five special senses, namely, sight, hearing, smell, taste and touch. To these physiologists have added several, the muscular sense, the heat sense, etc., which may be comprehended as a sixth; and N. D. Mackay (*Med. Press and Circular*, 1916, **102**, 491) adds still another—the saving seventh—the extra special sense of humor, without which existence is as salt which has lost its saltness, and without which the events of life present to the unfortunate who lacks it a picture tame and insipid, drear and cold as the picture presented by Nature to the photographic vision of the totally color blind.

THE LEUKOTOXIC FACTOR IN LYMPHATIC LEUKEMIA

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The earliest stage of leukemia is unknown. Cases are not uncommon in which an aleukemic blood picture (that is, one showing no increase in the total number of leukocytes but a relative increase in the lymphocytes) has later developed into a typical lymphatic leukemia. Not only this, but there is so close a resemblance between the blood picture and pathologic lesions of aplastic anemia and those of aleukemic (sublymphemic) leukemia, that there is a fair suspicion that the two diseases have some sort of pathogenic relationship.

In aplastic anemia one of the striking features is the great diminution of the granulated leukocytes in the circulation. Within the last few years our understanding of the probable pathogenesis of this has been greatly increased by Selling's studies on benzol poisoning. Benzol (benzene, C_6H_6) is an agent which destroys circulating polymorphonuclear leukocytes as well as the leukoblastic tissue of the bone marrow, and also injures but does not so readily destroy the lymphoblastic tissue. It seems probable that the agent which is at work in aplastic anemia acts in a somewhat similar way. Many workers have recognized that in all types of leukemia there is not only an overproduction, but also a greatly accelerated destruction of leukocytes. It seems probable that in the aleukemic or sublymphemic cases the same factors, productive and destructive, are at work, but that the destructive process exceeds cell reproduction. Changes in the relative rate of leukocyte production and destruction explain the transition from the aleukemic to the leukemic blood picture, as well as the reverse, which also sometimes occurs.

We have recently studied a case of aleukemic leukemia which finally developed into a typical chronic lymphatic leukemia. During the leukemic stage a large blood transfusion was performed. The interesting point to which we wish to draw attention is that in spite of the fact that a great number of granular leukocytes were transfused to the patient, these leukocytes had entirely disappeared from his circulation twenty-four hours after the transfusion. That this rapid disappearance of leukocytes is not the exception but the rule after transfusions in lymphatic leukemia, one of us can testify from observation in several similar cases.

There are two possible explanations of this phenomenon. Either the leukocytes were removed from the circulation and held in some internal organs, or they were destroyed. Which of these two possible explanations is the correct one can be settled only by extensive postmortem study. But from the fact that in cases of lymphatic leukemia in which there is almost a disappearance of polymorphonuclear leukocytes from the circulation, one does not find polymorphonuclears in any large numbers in the tissues or organs, it seems far more probable that the transfused leukocytes were very rapidly destroyed in the present case. In the case to which we are now referring, the patient was a young child, weighing 53 pounds, and the amount of blood transfused, 250 c.c., was estimated to represent about a quarter as much as the patient's own blood volume. It appears, therefore, that there must have been some toxic agent present capable of destroying within twenty-four hours approximately a quarter as many leukocytes as the child normally should have had in the circulation.

The history of the case is briefly as follows:

J. F., boy, aged 3 years, was seen, Aug 21, 1916. The family history and the child's previous history are unessential. He had been ill for several months with fever and increasing pallor and weakness. He showed numerous large, hard, discrete lymph nodes on each side of the neck, and somewhat smaller lymph nodes in the groins and axillae. The spleen was four finger breadths below the free border of the ribs. There was a loud systolic murmur over the entire precordium, a pulse ranging from 120 to 140, extreme pallor, with petechiae on the trunk, and hemorrhagic spots in the skin of the legs. The temperature at the first examination was 103.6 F. The blood count showed a grave anemia with less than the normal number of leukocytes. The differential count showed a predominance of small lymphocytes, with a small number of large lymphocytes and so small a number of polymorphonuclear cells that one could almost speak of the absence of the polymorphonuclear cells from the blood. The leukocyte count continued subnormal for two and a half weeks, and then abruptly within five days rose from 4,200 per cubic millimeter to 60,000, and eleven days later to 160,000 (as indicated in the accompanying table of blood counts). During this period the treatment consisted of arsenic and four intragluteal injections of 20 c.c. of whole blood obtained from the child's father. The condition of the patient slowly grew worse. He continued to have high irregular fever and developed some edema of the face and extremities. September 24, a transfusion of 250 c.c. of blood by the syringe method (Unger apparatus) was performed. Aside from an improvement in color, the general condition of the patient was not materially affected by the transfusion. On the following day the number of red cells was increased from 1,260,000 to 2,045,000. The total number of leukocytes in the circulating blood had dropped from 160,000 the day before transfusion to 49,000 on the day after. Unfortunately no blood count was made immediately after the transfusion, but the blood count made twenty-four hours after it showed a complete disappearance of the polymorphonuclear cells which had undoubtedly been transfused and which must have been in the circulation immediately after the transfusion. It was necessary to count 400 leukocytes in order to find one polymorphonuclear cell. The child lived only six days after the transfusion. The febrile and toxic symptoms continued unabated. The day before his death he developed a subicteric appearance.

BLOOD COUNTS

Date	Hemoglobin per Cent.	Red Blood Cells	White Blood Cells	Polymorphonuclears, per Cent.	Large Lymphocytes, per Cent.	Small Lymphocytes, per Cent.	Eosinophils, per Cent.	Basophils, per Cent.	Myelocytes, per Cent.
August 21....	..	1,400,000	4,200	0	91	9	..	....	....
August 25....	..	2,080,000	2,800	3	87	10	..	....	....
August 28....	15	1,280,000	2,200	1	95	4	..	....	....
August 30, injection of 20 c.c.									
September 5..	25	1,120,000	1,500	2	94	4	..	....	....
September 6, injection									
September 6..	32	2,010,000	4,200	14	64	22	..	....	....
September 11.	28	1,280,000	60,000	7	80	12	1	....	....
September 11, injection									
September 24.	25	1,200,000	160,000	0.75	99	..	..	0.25	0.25
September 24, transfusion									
September 25.	..	2,045,000	49,000	0.25	99.5	..	..	0.25	....

That this destruction of leukocytes was not due to any destruction of the transfused blood as a whole was shown by the absence of icterus or hemoglobinuria after the transfusion, and by the pronounced rise in the total number of red cells on the day after transfusion, as well as by the fact that before transfusion very careful tests were made to preclude hemolysis or agglutination between the blood of the donor and that of the patient.

3 West Eighty-Sixth Street—15 West Eighty-Ninth Street.

THE MEDICAL CORPS OF THE ARMY AS A CAREER

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To the young men of the profession, who are serving their internship and planning for their future, the Medical Corps of the Army as a career presents itself. Many give this service little consideration, because they lack information as to what the corps is and what it has to offer, or because of a misconception of the duties and functions of the medical officer.

Even those who are better informed, and are seriously considering the army as a life work, have little real information as to the duties of the medical officer; the question of pay and allowances is but vaguely understood, and even less known as to what is offered from a strictly professional point of view.

An applicant naturally asks: "What are the duties of the medical officer? What opportunities are offered, and is there encouragement to specialize? What are the requirements for admission?"

In the first place, one must bear in mind that the medical officer is not only a physician, but in addition he is a soldier and an integral part of a highly organized body. Hence he has to coordinate himself and his duties with the whole in order that the organization may work smoothly, as it is on the medical officer that the commanding officer depends for the efficient administration of the sanitary service, the health of the troops, the care of the sick, and the prompt return of the physically fit to their organizations.

THE MEDICAL OFFICER AS A SPECIALIST

The medical officer is a specialist, trained for certain specific duties, aside from the care of the sick, which do not fall to the lot of the civil practitioner. He is an administrator, a sanitarian, and cares for the sick and injured. In the case of the sick and injured the medical officer has a twofold responsibility: the protection of the interests of the government, and justice to the individual.

The primary duty of the medical officer is that of a sanitarian. He must safeguard the health of the command by familiarizing himself with the health conditions of surrounding territory, and take measures to prevent the introduction of epidemic diseases into the camp or garrison. Should an epidemic occur he must make early diagnosis of the disease, institute such measures as will limit its spread, care for those sick, isolate contacts, and eliminate carriers; all of which requires sound judgment, common sense, and quick decision.

The history of the medical service of the army is rich in examples of the distinguished work of its individual officers. Their work as sanitarians in Cuba, Porto Rico, the Philippines and Panama forms a brilliant page in the history of preventive medicine. One has only to read medical literature for the past eighteen years to be familiar with their accomplishments.

The work of the corps as a whole is shown in the remarkably low morbidity and mortality rates among the troops recently and now on the border, both regular troops and those in the national guard. To perceive its value, the death rate of the Spanish-American War should be contrasted with the conditions in Texas since 1911. A concrete example of the former was the unhappy condition of the division of volunteers at Jacksonville, Fla., in 1898. There 10,759 men, within four months, had 248 deaths from typhoid fever and 281 deaths from other illness, a total of 529, equivalent to an annual death rate of 147.4 per thousand; of this total, 78.3 per thousand were due to diseases other than typhoid. Against this, the division of regular troops which was encamped at San Antonio, Texas, in 1911, for the same length of time, had no deaths from typhoid fever, and but eleven deaths from other diseases, equivalent to an annual death rate of 2.58 per thousand per annum, and a death rate for diseases other than typhoid fever of less than one thirtieth of that among the volunteers at Jacksonville, Fla., in 1898. The comparison illustrates the work of the military specialist as against that of the practitioner untrained in the special duties of the medical officer.

Troops have for the last five years been on the border under field conditions with a sick rate less than the average garrison rate. Since June the national guard has been encamped on the border under conditions similar to the regular service. Although many of the officers and enlisted men of the national guard were untrained in sanitation, army methods were enforced by army sanitarians from the time of their arrival. The result is shown in the low sick rate, averaging less than 30 per thousand for all troops, about 150,000 with only 166 deaths from disease in seven months; a (total death) rate of 1.9 per thousand per annum against a death rate from sickness in 1898 of 28.18 per thousand per annum. Such results can be accomplished only by specializing, by creating a medical corps which will be the great conserving agency of the army in peace or in war.

In civil life, the practitioner, unless possessing ample means, specializes only after some years of general practice. In the army he begins to specialize while a student candidate for commission; for it is at the Army Medical School that the special duties of the medical officer as differing from practice in civil life are taught. Later, after qualifying for the corps and receiving a commission, the medical officer is encouraged to specialize in one of the several branches of the profession, just as does the practitioner in civil life.

REQUIREMENTS

An applicant for a commission in the Medical Corps of the Army must be a graduate of a reputable medical school, must have served one year (postgraduate) as a resident intern in a hospital, and must be of good moral character, physically sound, and between the ages of 22 and 32 at the time he receives his commission. He is required to submit an application in his own handwriting, accompanied by two letters or testimonials, and evidence that he is a graduate of a medical school, that he is within the age limit, and that he has served the required internship.

Twice a year or oftener, boards for the supervision of the preliminary examinations are appointed, and these boards, meeting on a specified date and hour, hold sessions in various parts of the United States and its dependencies. The examination is physical and professional. After the physical examination comes the written examination. In this a day is given to major subjects and a half day to minor subjects. As these boards are merely for the purpose of conducting the physical examinations and supervising the written examinations, the reports of the physical examinations and the papers of the various candidates are sealed and sent to the surgeon-general of the army, who in turn forwards them with the testimonials of the applicants to the central examining board, appointed by the secretary of war, usually from the faculty of the Army Medical School. The papers are graded by the individual members of the central board and the markings later reviewed by the full board. The successful candidates are reported to the surgeon-general, who submits recommendations to the adjutant-general of the army that they be commissioned as first lieutenants in the reserve corps, in order that all candidates for the corps may have an official status while attending the Army Medical School. If the examination is in January, the successful applicants are commissioned at once and when practicable ordered to active duty at a post or in the field until the opening of the Army Medical School, October 1.[1]

THE ARMY MEDICAL SCHOOL

Attendance at the school and graduation therefrom are prerequisites for a commission. The course is both undergraduate and postgraduate — postgraduate in the sense that the laboratory courses are of the highest order, on a plane far above that taught at the average medical school. No similar advanced course is offered elsewhere, except in postgraduate schools to applicants for higher degrees. The school is under the command of a colonel of the medical corps, who is assisted by a faculty of medical officers. The course includes military medicine and surgery, sanitary chemistry, camp sanitation, the hygiene of the soldier, sanitary tactics, bacteriology, pathology, operative surgery, clinical medicine, ophthalmology, roentgenology, the duties of the medical officer, administration, the customs of the service, military law and equitation. The discipline of the school is strict, the requirements high and the work hard. The midterm examinations practically settle the future of the student. If he holds up to the standard after passing these examinations, he is almost sure of his commission; but should he fail at the midterm examination, he is relieved from duty at the school and ordered to his home.

The final examinations are held in May, and diplomas awarded to those who graduate. Commissions are issued to graduate candidates who obtain more than the minimum passing mark, and who are physically qualified for the service.

Even should a candidate fail to obtain a commission, he has received a course of instruction which cannot be duplicated in civil life. He attends school as an officer of the reserve corps, with the pay and allowances of the grade, equaling about $200 per month, and mile-

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[1] Owing to the shortage of medical officers, the school years 1916-1917 and 1917-1918 will be divided. The school will open July 1, and Oct. 1, 1917, and March 1, 1918. Candidates who qualify at this time would enter the school, July 1, and receive their commissions in October, saving almost one year in their service.

There are at present 230 vacancies in the corps, with less than 100 qualified applicants. July 1, there will be an additional 222 vacancies age to and from his home, the government in addition paying for the transportation of his household goods up to 5,100 pounds. This is the material side. From the professional side he has the advantage of work for eight months, in laboratories and wards equipped with the best and most modern apparatus, under instructors who are themselves specialists in the various branches of their profession. The foundation for a specialty is laid in the school — whether it be in internal medicine, surgery, bacteriology and pathology, roentgenology, ophthalmology, sanitation or any other branch of medicine.

The school also provides postgraduate instruction to commissioned medical officers, who in such numbers as can be spared from other duties are ordered to the school for four months each year for special work.

PRACTICAL DUTIES

The newly commissioned medical officer is first assigned to post or field duty in the United States, where he must apply the theory learned at the Army Medical School. He later takes his tour of foreign service, either in Alaska or the Philippine Islands for two years, or in the Canal Zone, Hawaiian Islands, or Porto Rico for three years. The foreign service roster is fixed for each grade, and an officer takes his tour of service when his name is reached on the list. On foreign service the routine duties are the same as at home, but each officer is expected, so far as his ability permits, to take up the study of the diseases peculiar to the locality in which he is stationed.

In addition to the facilities for study in the medical department, the medical officer thus is assured of travel in foreign lands, with its attendant opportunities to observe the peoples thereof and their customs. While on duty in the Philippine Islands, leave of absence can readily be obtained, when service conditions permit, for the purpose of visiting Australia, the East Indies, China or Japan; and at the end of his tour authority (in time of peace) to return to the United States via the Suez Canal or Siberia. If on duty in Porto Rico or the Canal Zone, similar privileges are available to visit South America, with which there is direct communication by steamship.

The medical department takes a paternal interest in its officers, and encourages the ambitious and studious by supplying equipment of operating rooms, Roentgen-ray and research laboratories, etc. New publications are sent to posts and general hospitals; periodicals are supplied, and special books are furnished on requisition. In fact, the department aids and encourages the personnel of the corps in every way so far as the interests of the service will permit.

LEAVES, POSTGRADUATE STUDY AND RESEARCH WORK

Leaves for study are granted to officers when possible. Prior to promotion, captains are assigned for one year to medical centers for the purpose of study and research. Officers so assigned are expected to attend clinics, take courses at a postgraduate school, and to specialize in some branch of the profession. Reciprocal arrangements have been made with certain medical schools and foundations for special privileges to medical officers on condition that medical officers give instruction in military medicine, hygiene and the duties of the medical officer. Officers selected for these assignments enjoy opportunities which come to few of the profession in civil life.

Research into the causes of disease as well as in prevention has in the army reached a high plane. Original work, and the systematic study of all conditions affecting the health of the army are encouraged. The former difficulty in carrying on systematic research due to frequent interruptions occasioned by strict adherence to the foreign service roster is now corrected by the organization of the research division; and, in the future, results as important to the medical world as those contributed in the past by the corps are confidently expected. The establishment of this division is one of the most important advances in medical department administration made in many years, as it will enable the department to utilize to the fullest extent the trained laboratory workers in the corps.

Twenty-four officers have been assigned to this division. This number will be increased as the work expands and the necessity arises.

PROMOTIONS AND PAY

In passing through the various grades from first lieutenant to colonel, examinations are required. Should a lieutenant or captain fail in examination, he is honorably discharged with one year's pay. Should a major or lieutenant-colonel fail in examination for promotion, he is suspended from promotion for one year, is then reexamined, and, should he fail the second time, is placed on the retired list.

The pay of the medical officer may be compared to that of a full-time instructor or professor in a medical school. The first lieutenant receives $2,000 a year in addition to allowance for quarters, fuel and light. The basic pay of captain (a grade attained after five years' service) is $2,400 a year, with 10 per cent. increase for each five years' service up to twenty years. This gives a 40 per cent. increase, or a maximum pay of $3,360 a year, with allowance of quarters, fuel and light. The pay of a major is limited to $4,000, lieutenant-colonel to $4,500, and a colonel to $5,000 a year, with quarters, fuel and light. The law also provides for retirement on three quarters of the pay of the grade for disability at any time in line of duty, or for age at 64. The earnings are less, perhaps, than those of men of equal ability in civil life, "but the position is one of dignity, opportunity and service to one's country."

ADVANTAGES OF THE SERVICE

Never since the establishment of the medical department by Congress have the opportunities been so great, never has the medical corps been on a better footing, and never have the officers of the corps been encouraged to work along independent lines and to specialize as now. Socially there is the association with the highly educated, thoughtful and purposeful men and women of the service, the absence of the social jealousies often encountered in civil life, the assurance of a home, and a competence during life.

In the medical corps, as in civil life, there is opportunity to promote the progress of medicine and to achieve individual distinction. As in civil life, the advantage to be taken of this opportunity depends on the individual, the real difference being that in the army there is a constant incentive for duty, if not from individual ambition, at least by pressure from higher authority, although the officer who requires constant pressure from higher authority does not last. It is the professionally fit who succeed in the army as elsewhere, the men who require no incentive other than their own ambition.

ALKALINE TREATMENT OF EARLY GALLBLADDER CARRIERS

WITH OBSERVATIONS ON THEIR DETECTION BY AID OF THE DUODENAL TUBE *

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Gallbladder carriers include carriers of the typhoid group, cholera carriers and probably also bacillary dysentery carriers. I have called attention[1] to the problem of the pathogenesis of gallbladder lesions in these diseases, and have emphasized the mechanism of descending infection of the bile from the liver. It was shown by means of the common duct fistula method in rabbits that more typhoid bacilli appear in the bile with larger intravenous doses; that more bacilli appear after mesenteric than after ear vein injections; that more bacilli appear in immunized animals than in normal animals, and that more actual gallbladder infections occur under these conditions, which favor the presence of micro-organisms in the bile, than otherwise.

TABLE 1.—RESULTS OF EXAMINATION OF DUODENAL CONTENTS IN TEN CASES OF RECENT RECOVERY FROM TYPHOID

No. *	Diagnosis by	Temperature Normal, Weeks	Time of Collection, Hours	Amount, C.c.	Color	Appearance	Consistence	Reaction to Litmus	Microscopic Examination	Culture for Typhoid Bacilli	Stools and Urine	Time Since Typhoid Prophylaxis
1	Blood culture.	2	4	About 10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.......	Amorphous sediment	(–)	(–) (–)	2 years
2	Agglutination	2	5	10	Greenish-yellow	Turbid.	Mucoid.	Slightly acid.	Amorphous sediment	(–)	(–) (–)	No prophylaxis
3	Agglutination	3	4	10	Greenish-yellow.	Clear...	Mucoid.	Slightly alkaline	Amorphous sediment	(–)	(–) (–)	5 years
4	Blood culture.	2	4	10	Greenish-yellow.	Turbid.	Liquid..	Neutral.......	Cholesterin crystals; bacilli	(–)	(–) (–)	1 month
5	Blood culture.	2	5	10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.......	Débris; mucous yeasts; cocci	(–)	(–) (–)	2 years
6	Blood culture.	1	5	10	Greenish-yellow.	Turbid.	Mucoid.	Slightly alkaline	Yeasts; amorphous débris	(–)	(–) (–)	2 years
7	Blood culture.	1	4½	10	Greenish-yellow.	Clear...	Mucoid.	Slightly alkaline	Bacilli; amorphous débris	(–) Colon (+)	(–) (–)	5 months
8	Bile culture....	†	4	10	Greenish-yellow.	Turbid.	Mucoid.	Neutral.......	Yeasts; débris.	(+) Typhoid	(–)‡ (–)¶	3 months
9	Blood culture.	2	5	10	Greenish-yellow.	Turbid.	Mucoid.	Slightly alkaline	Yeasts; amorphous débris	(–)	(–) (–)	3 months
10	Blood culture.	3	5	10	Yellow..........	Turbid.	Mucoid.	Neutral; 1.4% acid to phth.	Bacilli; amorphous débris	(–) Colon (+)	(–) (–)	3 months

* Regulars, Nos. 1, 2, 3, 8; militiamen, Nos. 4, 5, 6, 7, 9, 10. † Five days, then relapse. ‡ Urine, once. ¶ Feces, six times.

The mechanism of infection in the case of typhoid, cholera and dysentery organisms seems, therefore, to be different from that in case of the streptococci which, as has recently been shown by Rosenow,[2] seem to infect first the gallbladder wall by means of emboli. This difference in the action of the two groups of micro-organisms is recorded in the tissues. In experimental typhoid gallbladder lesions in the rabbit, section of the gallbladder wall shows an infiltration with round cells only immediately underneath the mucous membrane where the influence of the infected bile is first exerted. No foci of infection are found in the wall of the bladder, and no peritonitis is present. The bladder is often ballooned out with a very thin transparent wall. In the case of the streptococci, distinct evidence of embolic infection is present in the muscle wall and peritoneal covering of the gallbladder.[2] The explanation of this difference is apparently to be found in the selective effect of the bile as a culture medium. The bile capillaries are separated from the blood stream of the intralobular veins by less than one half of the width of a liver cell, and we have experimental evidence that, in any marked septicemia, micro-organisms easily pass this barrier. Once in the biliary system, they are of course subject to the action of the bile.

In the case of the streptococci, whose growth is not favored by this medium, it appears that they are simply washed through the bile passages or die off in them; if an infection of the gallbladder is to occur, it must start in the gallbladder wall. The other organisms mentioned, however, can first multiply in the bile and then secondarily invade the gallbladder wall.

Under these circumstances it is indicated to direct early therapeutic efforts to the bile rather than to the blood or tissues. In the experimental work referred to, I found that, while human bile and ox bile generally favor the growth of typhoid bacilli, rabbit and guinea-pig bile kill off all bacilli in twenty-four hours. This effect was first noted with bile from a common duct fistula. It is not so definite, especially in case of the rabbit, with bile from the gallbladder, which is less alkaline and contains more solids than bile directly from the liver. This antiseptic action was found to be due largely to the alkalinity of the bile, because it disappears on neutralization. This finding suggested that alkaline treatment might be of value in the treatment especially of incipient carriers. The reaction of the bile can be influenced by the administration of alkalies. It was found that sodium bicarbonate injected intravenously made rabbit bile more alkaline. In man the same thing is apparently true, as evidenced by the following experiment: The duodenal contents of a normal person were titrated with a result that 5.4 c.c. of normal sodium hydroxid were required to neutralize 100 c.c. to phenolphthalein. The subject was then put on a daily dose of 6 gm. of sodium bicarbonate; at the end of a week, the duodenal contents were again titrated, and only 1.2 c.c. of normal sodium hydroxid were required to neutralize 100 c.c. The urine became neutral on the fourth day. Such tests should preferably be made in cases of biliary fistula, because in the duodenum the bile may be mixed with gastric and pancreatic fluid; but it seems reasonable that the result would be qualitatively the same. In the work on anes-

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* From the Laboratory Service of the U. S. Army Letterman General Hospital, San Francisco, and Southern Department Laboratory No. 2, El Paso, Texas.

[1] Nichols, H. J.: Jour. Exper. Med., 1916, **24**, 497.

[2] Rosenow, E. C.: Jour. Infect. Dis., 1916, **14**, 527.

thetics recently reported by Crile,[3] the reaction of the bile was influenced by changes in the alkalinity of the blood.

THE DETECTION OF GALLBLADDER CARRIERS BY AID OF THE DUODENAL TUBE

The subject of the treatment of carriers naturally brings up the subject of their detection. While much advance has been made by the examination of feces, I believe that the examination of the duodenal contents marks an advance over any enrichment mediums for the feces. A report on the value of the use of the duodenal tube in general diseases of the gallbladder has recently been made by Einhorn,[4] and in the detection of typhoid carriers by Garbat.[5] As a result of the experimental work referred to, I was especially impressed with the possibilities of the method advocated in these articles. The various new mediums which are still being devised[6] for the detection of typhoid bacilli in the feces show that this method is not altogether satisfactory, and a concrete example is found in the fact brought out by Garbat's cases, and also by my own, that the duodenal contents of early carriers may contain typhoid and paratyphoid bacilli while repeated examination of the feces fails to reveal them.

TABLE 2.—RESULTS OF EXAMINATION OF DUODENAL CONTENTS OF TEN CASES OF RECENT RECOVERY FROM PARATYPHOID *

No	Paratyphoid A Diagnosis by	Temperature Normal, Weeks	Time of Collection, Hours	Amount, C.c.	Color	Appearance	Consistence	Reaction to Litmus	Microscopic Examination of Sediment	Culture for Paratyphoid Group	Stool and Urine	
1	Blood culture.	2	5	About 10	Yellowish-green.	Turbid.	Liquid..	Neutral.......	Bacilli; débris..	(—) Colon (+)	(—)	(—)
2	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Neutral.......	Bacilli; yeasts; débris	(—) Colon (+)	(—)	(—)
3	Blood culture.	2	4	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.......	Débris; crystals.	(—)	(—)	(—)
4	Blood culture.	1	5	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.......	Débris; crystals; bacilli	(—) Colon (+)	(—)	(—)
5	Bile culture....	2	4	10	Yellowish-green.	Turbid.	Mucoid.	Slightly alkaline	Débris; cocci....	(+) Numerous colonies Paratyphoid A	(—) 8 times (+) once	(—)
6	Agglutination	4	4	10	Yellowish-green.	Turbid.	Mucoid.	Neutral.......	Débris...........	(—)	(—)	(—)
7	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Neutral.......	Débris...........	(—)	(—)	(—)
8	Blood culture.	1	4	10	Yellowish-green.	Turbid.	Mucoid.	Slightly alkaline	Débris...........	(—)	(—)	(—)
9	Blood culture.	2	4	10	Yellowish-green.	Clear...	Mucoid.	Slightly alkaline; 1.2% to phth.	Débris...........	(—)	(—)	(—)
10	Paratyphoid B; feces culture	1	5	10	Yellowish-green.	Turbid.	Mucoid.	Alkaline	Débris; cholesterin crystals; bacilli	(—) Colon (+)	(—)	(—)

* No paratyphoid prophylaxis in any case.

As will be seen in Tables 1 and 2, I have used this new method in twenty cases with two positive results. All were soldiers of the regular army or militia at the Letterman Hospital, March, 1916 (one), and at Base Hospital No. 2, September-December, 1916 (nineteen). Garbat passed an Einhorn tube overnight, but suggests that the time could be shortened by use of a gravity tube. We have used the Einhorn tube successfully in a shorter time, and also use selective mediums for cultivation.

Technic. — A regular breakfast is allowed at 7 o'clock; in about two hours the metallic sinker is chilled in ice water and is put in the mouth with the patient sitting up in bed, and a small drink of water is given; as soon as the patient swallows the sinker he lies down on the right side and waits for the tube to descend to the duodenum (third mark). On an average, a wait of about four or five hours was necessary. At the end of three hours, Dr. Artaud, of the Medical Reserve Corps, "primes" the tube by aspiration with a syringe, which usually produces a small amount of whitish mucus, acid to litmus. This procedure often establishes a siphon, and in another hour yellowish-green fluid, neutral or alkaline to litmus, may be dropping out of the tube. Further suction gives from 10 to 20 c.c. of genuine duodenal contents. If the contents are still acid, a further wait is necessary, and rarely another trial on another day must be made. No special hardship is involved, and one patient took the tube four times. Altogether twenty-eight successful attempts were made out of thirty-two trials on twenty-five patients. Endo plates are inoculated as soon as possible, one with the straight fluid and one with the centrifugate. Another portion is put in brilliant green peptone water, 1 : 20,000, and plated on Endo's medium after twenty-four hours' incubation. The centrifugate is also examined microscopically for organisms, crystals and cells. In one case many active *Lambliae intestinales* were recovered, while the stool showed only a few cysts.

In general, the contents in all cases were much the same, consisting of a yellowish-green, mucoid, slightly turbid liquid, neutral or slightly alkaline to litmus. The specimen, therefore, differs from the thick brown fluid obtained from a biliary fistula, but the change in appearance is apparently due largely to dilution, which does not affect its suitability for culture. In the centrifugate, amorphous débris predominates, a few cholesterin crystals are occasionally seen, and also yeasts, cocci and motile bacilli, which culture shows are usually colon bacilli. The two positive cases showed no distinct macroscopic or microscopic evidences of infection, although carriers of longer standing would probably show some pus cells.

It so happened that, in the two positive cases, examination of the duodenal contents also furnished a diagnosis which could not have been made otherwise with certainty. Both patients were admitted late in their fevers, blood cultures and stool culture were negative, and agglutinations did not furnish much information, as the patients had both been vaccinated with typhoid vaccine and gave a good reaction for typhoid while paratyphoid A agglutinations are weak even in infected persons. In one case paratyphoid A bacilli were found in considerable numbers, and, in the other, typhoid bacilli. The latter patient soon developed a typical typhoid relapse.

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[3] Crile, G. W.: An Experimental Research into the Nature of Nitrous Oxid and of Ether Anesthesia, The Journal A. M. A., Dec. 16, 1916, p. 1830.

[4] Einhorn, Max: The Duodenal Tube as a Factor in the Diagnosis and Treatment of Gallbladder Disease, The Journal A. M. A., June 17, 1916, p. 1908.

[5] Garbat, A. L.: Duodenal Cultures in Typhoid Fever as a Means of Determining Complete Convalescence, The Journal A. M. A., Nov. 18, 1916, p. 1493.

[6] Teague and Clurman: Jour. Infect. Dis., 1916, **18**, 647, 653.

ALKALINE TREATMENT

Case 1.—*Paratyphoid A carrier.*—Truck driver, aged 26, Quartermaster Corps, was admitted to Base Hospital No. 2, El Paso, Texas, Oct. 10, 1916, with a temperature of 103 and a history of fifteen days' fever in Mexico. Blood culture and feces culture were negative, October 11. Typhoid prophylaxis had been given in 1911 and 1914. The temperature became normal, October 14. October 30, duodenal contents were obtained and a large number of suspicious colonies were found on the Endo plates which proved to be those of Paratyphoid A bacilli. The contents were slightly alkaline.

TABLE 3.—WIDAL TESTS IN CASE 1

		Agglutinations				
		1:40	1:80	1:160	1:320	1:640
October 18	Ty..........	(++)	(+)	(+)	(+—)	(—)
	A..........	(+—)	(—)	(—)	(—)	(—)
	B..........	(—)	(—)	(—)	(—)	(—)
October 27	Ty..........	(++)	(+)	(+)	(+—)	(—)
	A..........	(—)	(—)	(—)	(—)	(—)
	B..........	(—)	(—)	(—)	(—)	(—)
November 3	Ty..........	(++)	(++)	(+)	(+—)	(—)
	A..........	(+—)	(—)	(—)	(—)	(—)
	B..... ...	(—)	(—)	(—)	(—)	(—)

The patient was put on 2 gm. of sodium bicarbonate, three times a day, for ten days. The urine became alkaline in three days. Second examination of the duodenal contents was negative, November 14. The bile was definitely alkaline to litmus. The feces examination was negative eight times during the treatment, and was strongly positive once. The urine was negative twice.

Case 2.—*Typhoid carrier.*—A militiaman, aged 20, was admitted, November 3, with a temperature of 104 and a history of fever for one week. Blood cultures and stool culture were negative, November 4 and 5. Typhoid prophylaxis had been given in July, 1916. The temperature was normal, November 13. November 15, a duodenal tube was passed, and the contents showed typhoid bacilli in a brilliant green sample; the direct plate was accidentally dropped and lost. The contents were neutral. There was a relapse from November 18 to December 10. Sodium bicarbonate, 2 gm., three times a day, was given, November 19-28. Second bile test, December 21, was negative. The feces examination was negative six times, and the urine negative once.

In brief, both these early carriers were negative on a second examination of duodenal contents after a course of sodium bicarbonate. They may have been simply temporary carriers and might have cleared up of themselves, as did Garbat's and Berry's[7] patients. On the other hand, they might have become permanent carriers. In the paratyphoid A case a suggestive finding occurred: the stools were negative except on one examination, which showed a large number of colonies. This result may have been in the nature of a "provocative" reaction due to washing out of a plug of infected mucus.

COMMENT

The superiority of examination of duodenal contents over that of the feces for the detection of carriers is, of course, to be expected theoretically and seems to be strongly indicated by the few cases so far examined. Whether the bacilli are constantly or only intermittently present in the duodenal contents of a carrier will have to be determined by further work; the chances favor the former possibility; but if bacilli are only intermittently discharged, the gallbladder may be stimulated to contract during the examination by a preliminary meal, as suggested by Garbat.

The number of permanent carriers of typhoid bacilli is usually put at about 3 per cent. of cases, while temporary carriers run much higher, depending on the time of examination. Examination of the duodenal contents may increase the percentages for both kinds of carriers, but especially for temporary carriers. In this connection a practical point is the proper time after recovery for examination, because the bile always contains typhoid group bacilli at some period of the disease. Probably at least a month should pass after the temperature is normal before the test is made, in order to avoid picking up the purely temporary carriers which clear up of themselves.

The importance of the detection of carriers of the typhoid group has been generally recognized in our military service, especially since the work of Russell on the typhoid problem in the army, and two negative feces and urine examinations are required before discharge. In civil life, as shown by Garbat, the same is hardly true as yet, and the traditional view that welfare of the individual patient is the end-all of the physician's duty still has force. In the service and in public health work generally, in which a medical officer is charged with preserving the health of large numbers of persons, the more modern views of preventive medicine and social welfare are perhaps more in evidence. The individual, of course, must still remain the unit of attention, but many possible cases have claims as well as the one actual case. A concrete example is found in the possible spread of paratyphoid A infections as a result of the present mobilization. As we now know, this disease is far from rare in Mexico and on the border, and a number of cases have occurred in the troops, as will later be reported by medical officers. Fortunately the disease was promptly stopped by vaccination, and the convalescents have been examined for carriers;[7] but it should be recognized that these measures are distinctly recent and are due to modern broad conceptions of medical work.

TABLE 4.—WIDAL TESTS IN CASE 2

		Agglutinations				
		1:40	1:80	1:160	1:320	1:640
November 7	Ty..........	(++)	(++)	(+)	(+—)	(—)
	A..........	(—)	(—)	(—)	(—)	(—)
	B..........	(—)	(—)	(—)	(—)	(—)
November 8	Ty..........	(++)	(++)	(++)	(+)	(+—)
	A..........	(—)	(—)	(—)	(—)	(—)
	B..........	(—)	(—)	(—)	(—)	(—)
November 17	Ty..........	(++)	(++)	(++)	(+)	(+—)
	A..........	(—)	(—)	(—)	(—)	(—)
	B..........	(—)	(—)	(—)	(—)	(—)

In regard to the alkaline treatment of early carriers, the work so far done is largely preliminary; only two cases have been treated, and they were not of a decisive character. The object of this article is to call attention to the importance of realizing the pathogenesis of the carrier condition and of appreciating the possibilities of early treatment through the bile. As in many other conditions, much more may be accomplished early than late. No opportunity has yet presented itself for the treatment of a chronic carrier, but the conditions here would seem to be more difficult. Vaccination seems to have cured some cases and in others surgical intervention has been tried successfully when vaccine failed. Again, removal of the gallbladder is not always successful, as the bile passages may be infected. The chances of curing a well established lesion by simple measures certainly do not seem as good as they may be in early lesions. The reasons for trying to cure early carriers through influencing the reaction of the bile are: The bile is first and always infected; it spontaneously frees itself from infection in most cases by its antiseptic action; the antiseptic action is largely dependent on its alkaline reaction, and the reaction of bile can be made more alkaline by appropriate means. In case of a combined gallbladder and urinary bladder carrier, the case would of course require separate lines of treatment, one alkaline and the other acid. Many other factors, such as the effect of the infection itself on the reaction of the bile,[8] the extent to which the reaction can be changed, and the amount of alkali required remain to be determined.

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[7] Berry, C. W.: Med. Rec., New York, 1917, **140**, 135.

SUMMARY

1. The mechanism of gallbladder infection in the typhoid group, cholera and bacillary dysentery is by descending infection of the bile from the liver and not by emboli in the gallbladder wall.
2. Alkalinity of the bile favors its antiseptic action, and the reaction of the bile can be affected by the administration of alkalies.
3. The detection of early gallbladder carriers by examination of the duodenal contents is "a more reliable and simpler method" (Garbat) than examination of the feces.
4. Alkaline treatment is suggested for early gallbladder carriers.

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THROMBO-ANGIITIS OBLITERANS

THE CONSERVATIVE TREATMENT BY BIER'S HYPEREMIA SUCTION APPARATUS *

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Until recently, the opinion prevailed that this condition is incurable, and that the affected limb will have to be amputated sooner or later. This opinion is shared by many, even now; but since the pathologic changes in the amputated limbs began to be studied more carefully, it has become more and more evident that in almost all there is a tendency to self cure by the establishment of a compensatory circulation, either by anastomotic routes or by the canalization and vascularization of the thrombosed main blood vessels.[1] Since this was demonstrated, there has been a strong tendency toward conservatism in the treatment of the disease, and most of the measures advocated had as their object the correction of a hypothetic, physiologic or pathologic disturbance, which in the opinion of the different observers is responsible for the clinical condition.

As at present practiced, the conservative treatment consists of: (1) surgical procedures, such as arteriovenous anastomosis, and ligation of the femoral vein; (2) the use of drugs, such as nitrites and glandular extracts; (3) the use of substances to modify the state of the blood, such as hypodermoclysis or intravenous injections of anticoagulating substances; (4) local measures to improve or modify the circulation by local agents, such as the use of baking or superheated air, electricity and the induction of an active or passive hyperemia. All these measures are being used by different clinicians singly, combined or in succession. The results, however, are not uniform, the advocates of each method claiming good results, while others in an equally large series of cases report hardly any results whatever.

Superheated air or baking is at present more extensively used in the treatment of this disease than any other measure. The hyperemia and heat produced by this means have a considerable anodyne effect, and the warmth which follows its use and lasts for some time is welcomed by the patient; but a lasting effect is seldom seen, as the troublesome symptoms unfortunately recur after a few hours. All our patients have had their limbs baked every day for a long period of time, and although they liked the temporary warmth obtained, they all agree that it is of no permanent benefit.

The unsatisfactory results obtained by the employment of the various modes of treatment as carried out at present, and the intense suffering of the patients in the advanced stages have impressed us with the necessity of looking for some method which would give temporary relief in the hopeless cases, and promise some permanent results in the less advanced cases. Not only is the superheated air, used with some advantage in the earlier stages, without effect on the extremely painful ulcerated and gangrenous parts, but also it seems distinctly to intensify the pain. The anodyne effect of the hyperemia produced by the baking is offset by the irritating effects of the heat, which is not tolerated by the extremely sensitive parts. The changes and movements of the air incident to the constantly increasing temperature also seem to intensify the pain.

These observations prompted us to try the induction of a local hyperemia without the accompaniment of the factors mentioned above. The passive hyperemia as produced by Bier's suction method seemed to us the most suitable, and the ideal form to use in these cases. The hyperemia produced in this way is more intense than by any other means employed, and the irritating effects of the heat and atmospheric changes are done away with when the foot is enclosed for some time in a vacuum. As the main arteries of the foot are already obliterated in the majority of the cases at the time they come under observation, and as the disease itself has a tendency to self cure by the formation of a collateral circulation, the object of any conservative method of treatment should be to alleviate pain, to keep up the nutrition of the distal parts when gangrene is threatened, and to assist Nature in its attempts to establish a compensatory circulation. In addition to the production of a passive hyperemia, the negative pressure produced by exhausting the air also brings about an arterial hyperemia by its suction effect and by dilating the capillaries. The increased amount of blood thus produced results in greater nourishment to the tissues, and thus gangrene is delayed. Increased nutrition is also favored by the increased osmosis in the tissues taking place as a result of the difference in pressure.

The apparatus used was an ordinary Bier's suction cylinder, large enough to enclose the front part of the foot. The rubber cuff attached to the open end of the cylinder fits snugly around the ankle. The air is exhausted by a hand pump attached to a small opening at the closed end of the cylinder. We prefer using a cylinder which admits only the fore part of the foot, to a larger one admitting also a part of the leg, for the reason that there is more local action on the distal parts, which are mainly affected and responsible for the symptoms.

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[8] Frothingham, Channing, Jr.: Acidosis in Acute and Chronic Disease, Arch. Int. Med., December, 1916, p. 717.

* From the Physico-Therapy Department of Mount Sinai Hospital.

[1] Buerger, Leo: Am. Jour. Med. Sc., October, 1908, p. 567.

The treatment was begun on several bedridden patients who had suffered with extreme pain and were unable to keep the affected limb in the pendent position. After the first application of this treatment for about five minutes, we were surprised to hear from one patient that his pain had left him, and he was able to sleep a number of hours that night, thus getting rest which he had not had for a number of weeks. The other patients were also greatly benefited: they were able to sleep for several hours after each treatment, their appetite improved, they gained weight, and they became cheerful. An ulceration on the sole of the foot of one patient, which had persisted for months, almost completely healed after five weeks. With the kind permission of Dr. Heinrich Wolf, head of the physicotherapy department of the Mount Sinai Hospital, we proceeded to test the value of this suction treatment on a number of ambulatory patients in the outpatient department of that hospital, all other treatments which the patients were getting at that time having been discontinued. Twenty patients were treated in this way during the past five months, most of whom attended the clinic regularly three times a week.

All the patients have been suffering with this disease for a long time, and have had treatment by the various methods described above. All but two had no pulsations in their feet, both anteriorly and posteriorly; two patients had ulcerations on their second toe; one patient had the femoral vein of one leg ligated; three patients had one leg amputated previously for the same condition. In about half the cases, the feet were blanched, and in the other half they were either cyanotic or red. The results obtained are as follows:

All patients but one were affected favorably, and, as far as subjective symptoms are concerned, the patients assert that they were never before so much benefited by treatment. The case in which no relief was obtained was one of long standing, in which one leg was previously amputated; the other leg has no pulsations, but has normal color, and the only symptom complained of is pain in the calf, and at times, in the sole of the foot on walking. The patient does not seem benefited by any treatment, and his condition is characterized by remissions and exacerbations. Of those favorably affected, two improved so much that they returned to work and discontinued the treatment. Among the early and permanent effects obtained was increased warmth of the toes and foot. This was noticed in every case after about five or six treatments. Another striking improvement noticed was the fact that the patients can now walk without difficulty a much longer distance than they could before this treatment began. Some of them are on their feet the greater part of the day, and have no difficulty, although they were not able to use their feet this way for many months or years. The pain in the toes and soles of the feet either disappeared entirely or abated considerably, though some patients still complain more or less of pain in the calf of the leg. The color of the foot improved in almost every case in which the discoloration was at all marked. Some intensely cyanotic toes assumed a healthy pink hue after two or three weeks' treatment. The ulcerations present in two of our patients, though they have not yet been healed completely, are becoming shallower and smaller, and the pain which was very severe previously has disappeared altogether. There was no return of pulsations noticed in any of the vessels in which the pulse was not palpable at the beginning of treatment.

REPORT OF CASES

Case 1.—H. A., Russian Hebrew, aged 46, truck driver, eighteen months ago, was troubled by pain which appeared in the calf of the left leg and was soon followed by pain in the sole of the foot and great toe. The foot became cold and pale, and the symptoms grew worse, compelling him to give up work. Nine months ago, the femoral vein was ligated by Dr. H. Lilienthal, at the Mount Sinai Hospital. The pain disappeared after the operation, but reappeared two months ago, with all the other symptoms. The patient had been receiving treatments by baking all along, with no beneficial results. On examination, Sept. 3, 1916, the foot and leg were swollen and blue, the great toe was cold and showed evidences of impaired nutrition, the nail was distorted, and the color of a striking purplish blue. No pulsations were felt in any of the arteries of the foot or leg. The suction treatment was carried out regularly three times a week for from ten to fifteen minutes at a time. September 12, the patient was able to walk ten or twelve blocks without any difficulty, and the foot and toes felt much warmer. September 20, the great toe was of a good pink instead of the previous purplish blue. It felt warm, and the patient was able to attend to his business. He is still taking this treatment regularly, is on his feet the greater part of the day, does not complain of coldness, and has only an occasional painful sensation in the great toe, especially on change of weather.

Case 2.—I. B., aged 39, Russian Hebrew, tailor, fifteen years ago, was troubled by the great toe of his left foot, which became blue and cold, ulcerated, and was finally amputated. Eight years afterward, the same signs appeared in the right foot, and after seven years of suffering, this leg was amputated above the knee. Five months ago, an ulceration appeared on the second toe of the left foot. The toe became red, swollen and extremely painful, especially at night. Pulsations in the dorsal and plantar arteries of the foot were absent. Treatment was begun, Sept. 5, 1916. The patient felt much better after the first treatment, and slept well at night. September 12, he could walk several blocks without difficulty, and the foot felt warmer. September 30, the patient had no pains at all in his foot, the toe was not swollen, and the ulceration was shallower. At present, the ulcer is about half the size it originally was, there is no pain whatever, and the patient sleeps well and is able to walk a number of blocks without difficulty.

Case 3.—N. W., aged 49, storekeeper, was troubled with his veins for many years. Twelve months ago, pain appeared in the calf of one leg, soon followed by pain in the other. The pain occurred mostly when the patient walked, compelling him to stop frequently (intermittent claudication). Soon the feet and legs began to feel cold, and pain appeared in the inner side of the foot, in the sole, and at times in the toes of both feet. On examination, September 9, the feet were found pale, with a distinct bluish tracery of the veins. No pulsations in any of the vessels of the feet were perceptible, and they were cold to the touch. September 19, the patient felt much improved, could walk without difficulty from his home to the hospital (fourteen blocks), the feet felt warm, and there was no pain in the soles and inner side of the feet; but the patient still had an occasional pain over the base of the toes. He attends to treatment regularly. The feet have not changed color, they feel warm, and the patient can attend to his business. No pulsations are perceptible.

Case 4.—N. B., aged 40, Russian Hebrew, operator, was troubled about ten months ago with pain which appeared in the right foot and toes, and he had difficulty in walking. The foot and toes began to feel cold. Five months later, he was operated on for a bunion on the right foot, and two months elapsed before the wound closed. Since the operation, the toes, especially the great toe, had been blue, cold to the touch, and painful. There was also some pain in the sole of the foot. The pulse was not perceptible in the dorsalis pedis artery, but was present in the plantar arteries. Treatment was begun, Sept. 26, 1916. October 5, the patient felt much better, he had very little pain, could walk without difficulty, and the foot felt warm. He left then for the country. Because of the reappearance of the pain a week before, the patient returned from the country to resume treatment, November 3. This was kept up until November 28, when he returned to his work, the foot feeling warm, free from pain, and the color being good.

CONCLUSIONS

1. Admitting that many cases run a progressive course, the only treatment for which is amputation, we still firmly believe in conservative treatment for the majority of cases.

2. The various measures resorted to in the conservative treatment of this disease have proved, in the majority of cases, to be either of only temporary value or of no value at all in alleviating the symptoms.

3. The hyperemia suction treatment gives results unsurpassed by any other method available.

4. The beneficial effects observed are: increased warmth of the parts, improvement of the color, alleviation of pain, and more rapid healing of ulcerations.

5. Although occasionally a patient may not respond to this treatment, and some cases are too far advanced for benefit to be received by it, the improvement observed in the vast majority of cases is so evident that we firmly believe that this method deserves a definite place in the conservative treatment of thromboangiitis obliterans.

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THE SELECTIVE ACTION OF SPIROCHETES

REPORT OF FOUR CASES OF FAMILIAL OPHTHALMOPLEGIA INTERNA, DUE TO CONGENITAL SYPHILIS *

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CASE REPORTS

The following cases came under my observation about two and one half years ago:

The father was referred to me for treatment of a spastic hemiplegia, from which he had been suffering for about sixteen months. The paralysis came on gradually over a period of several months, during which time the patient had a number of convulsive seizures. After each convulsive seizure the paralysis became more profound, until the right side became completely involved. His speech also became affected. He had been a moderate user of alcohol and tobacco. He denied ever having had venereal infection. The family history was rather suspicious. His wife had had three miscarriages; one at eight, one at seven and the third at three months. These were followed by the birth of four children, now aged 13, 11, 9 and 7 years, respectively.

Physical examination revealed a poorly nourished middle aged man. There was a spastic hemiplegia on the right side. The pupils were irregular, unequal, and did not react to light. There was a sluggish reaction to accommodation. In the absence of an endocarditis, with no apparent renal disturbance, and the presence of a normal blood pressure, the diagnosis of cerebral syphilis was made.

Examination of the blood and spinal fluid revealed a ++++ Wassermann reaction. Globulin was present in excess. The cells, however, were not estimated.

I then examined the wife for evidence of conjugal infection. Although no active discomfort was complained of, I was able, on close questioning, to elicit a history of frequent attacks of moderately severe headaches, accompanied by dizziness and nausea. Her vision was failing, and at one time she had had a fleeting attack of diplopia. She had unequal, irregular pupils which were almost completely fixed to light and reacted sluggishly to accommodation. Superficial and deep reflexes were equal and active. Sensations were normal. There was no disturbance of gait. The blood Wassermann was ++++.

The presence of syphilis in the parents then led me to inquire into the condition of the children. The oldest child, P. H., had had snuffles and an eruption at birth, which lasted about one month. He had always been nervous and irritable and considered below par mentally; otherwise the history was negative. The third child, H. H., had an eruption at birth, but no snuffles. At the age of 7 he had an attack of convulsions, which were followed by spasticity and dragging of the lower extremities. The second child, I. H., and the fourth child, F. H., each gave a negative history.

In the oldest, second and fourth children, the pupils were widely dilated, unequal in size, irregular in outline, and did not react to light, accommodation, convergence or the instillation of physostigmin salicylate (a 1 per cent. solution) into the eye. The third child, H. H., in addition to these pupillary disturbances, had an active nystagmus, bilateral Babinski phenomenon, bilateral inexhaustible ankle clonus, increased knee and ankle jerks, and a well defined spastic gait. He also had about 2 diopters of swelling in the optic nerve heads. The teeth in the three older children, although not typically hutchinsonian, were highly suggestive.

The blood Wassermann was ++++ in the third child, doubtful in the two older children, and negative in the youngest. The second series of Wassermann reactions were made six months after the children had been receiving treatment, and were ++++ in all of the children. Subsequent examinations at six month intervals to the present time do not show any changes.

The presence of widely dilated pupils which react to light, accommodation, convergence or the instillation of miotics into the eye led me to the conclusion that we were dealing with a paralysis of the pupillary sphincter and the ciliary muscles: an ophthalmoplegia interna, probably of specific origin.

Antisyphilitic treatment was instituted in all of the cases. The mother and children received mercury in the form of inunctions daily, and potassium iodid in increasing doses (up to 10 grains in the children, and 20 grains in the mother), three times a day. The father received four intravenous injections of salvarsan, followed by weekly intramuscular injections of mercury salicylate, and potassium iodid by mouth.

This treatment has been continued for two and one half years. The father's condition has remained unimproved, while the mother's condition is somewhat better. She still suffers from an occasional headache; but increasing the iodid promptly relieves her. Her vision still remains poor, although there has been no further loss in the past two years.

The second and fourth child's pupils react promptly to physostigmin, convergence and accommodation, but are still a little sluggish to light. The oldest child, P. H., shows slight return of the reaction to physostigmin, less to convergence, and no return of reactions to accommodation or light reflex. The third child, H.H., shows slight improvement in his gait and nystagmus. The papillary edema has cleared up entirely. The pupillary phenomena, knee jerks, ankle clonus and Babinski, however, remain unchanged.

COMMENT

Ophthalmoplegia interna is the rarest form of pupillary disturbance found in congenital or acquired syphilis of the nervous system. It manifests itself clinically

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* Read in part and cases shown before the New York Academy of Medicine, Section on Neurology and Psychiatry, May 9, 1916.

as a paralysis of the intrinsic muscles of the eye. The pupillary phenomena may be unilateral or bilateral, the unilateral being encountered about twice as frequently as the bilateral. The phenomena consist of widely dilated pupils which do not react to accommodation, convergence or light reflex. Such pupils do not contract when physostigmin or other miotics are dropped into the eye. In the syphilitic cases, the pupils are, in addition, unequal in size and irregular in outline.

It is of interest to note that when the pupillary activity returned in my cases, during the course of antispecific treatment, the response to physostigmin was the first to appear. This was followed by the return of the reaction to convergence, next accommodation, and last of all light reflex. The same sequence was noted in three of the patients, two of whom have almost completely recovered their pupillary reactions.

The extreme importance of early recognition of these cases of latent congenital syphilis is evident. It is highly probable that some further involvement of the central nervous system would have occurred if treatment had not been instituted in these cases. It is also probable that such involvement may still occur despite the treatment.

The subsequent histories in this class of cases show that many of the patients are candidates for the juvenile types of tabes, paresis and other allied central nervous disorders. The only hope left for these unfortunate victims is early recognition of the danger to which they are exposed, and institution of the most intensive antisyphilitic treatment as soon as the condition is recognized.

Of the pathology of ophthalmoplegia interna, little has been written. The lesion is presumably nuclear. In syphilitic cases, it is most probably either a gumma or a degenerative process, due to endarteritic changes in the region of the third nerve nucleus.

The most common cause of ophthalmoplegia interna is syphilis of the central nervous system. Among the less frequent causes may be mentioned postdiphtheritic paralysis, trauma, and overstimulation with mydriatics, as atropin.

When a syphilitic infection occurs, the local spirochete inoculation is soon followed by a general infection.

Of the tissues which are equally accessible in a general infection, the most vulnerable will be the first attacked. At the same time this tissue heals, it develops a resistance against the infecting agent. In other words, it becomes less vulnerable, a property which the unaffected tissues do not as yet possess. This is illustrated by the definite line of invasion which we constantly find in a general syphilitic infection. It begins with the local site of inoculation, followed by invasion of the glands, mucous membranes and deeper tissues, each usually separated by periods of apparent perfect quiescence. Only exceptionally is the central nervous system invaded, and then this is usually the last tissue to be attacked.

Drs. Wile and Stokes of Ann Arbor demonstrated biologic changes in the cerebrospinal fluid in 63 per cent. of their cases presenting secondary syphilis. They concluded, however, that not more than 5 per cent. of these cases later gave destructive manifestations of central nervous syphilis.

The defensive property of a tissue which has healed may not be restricted to the particular strain of organism which called it forth, as von Krafft-Ebing has shown, by inoculating eight general paretics with virulent syphilitic material. In none of them did local reactions follow. Truffi, Ullman and Tomasczewsky have also shown in dogs that a similar local immunity exists in the different tissues to a second inoculation with the spirochete.

From the work of Reasoner, it would seem that there is little doubt as to the existence of distinct strains of the spirochete. He took twenty strains of the organism and experimentally produced the disease in rabbits. He found that definite strains produced definite lesions, and that these lesions could not be produced by any of the other strains of organisms.

Conjugal syphilis of the nervous system, manifesting itself either as tabes, paresis or cerebrospinal syphilis, is not as rare as its reports in the literature would indicate. Drysdale,[1] in a recent article, reviews some of the literature on the subject, and mentions cases by Laignel-Lavastine and Mercier, Ferenczi, Garnier and Sautenoise, and Junius and Arndt. In the discussion on his article, a number of other instances of conjugal cerebrospinal syphilis were mentioned. Bélières records three cases of general paresis and two of an allied nature, in which all the patients owed their contamination to the same woman. Beaussart quotes a series in which a syphilitic husband, free from nervous affection, had a wife who became tabetic, and a daughter who was a general paretic. After divorce, the husband remarried and his second wife also developed tabes. He also reports the case of a glass blower, A, who received a buccal chancre from a syphilitic fellow workman, B, through using his drinking cup. A and his wife died of general paresis; B died from general paresis. B's wife remained normal, but her lover afterward had tabes. In another group of Beaussart's, a man who had general paresis had a taboparetic wife. She had a lover who developed general paresis and whose wife showed pupillary changes. Morel Lavall records a series of five cases of general paresis with a common source of syphilitic infection. Pierre Marie, Bernard and many others have reported similar series. These instances could be multiplied many times, if all the cases encountered should be reported.

From the evidence deduced by the experiments of Reasoner, Truffi, Ullman and Tomasczewsky, we may assume that when the same lesions occur in persons infected with syphilis, these lesions are due to the same strain of organism. And when the same lesions occur in members of the same family, it is highly probable that they are due to the same strain of organism.

Hereditary susceptibility would here seem improbable, when we take into consideration the cases of conjugal syphilis reported by Drysdale, Bélières, Beaussart, Laignel-Lavastine and a host of others. In those cases allied lesions occurred in persons who were unrelated. They were probably infected, however, by a definite strain of spirochetes.

In my cases, we may assume that the wife received her infection from the husband. The occurrence in her, and in all the members of the family, of central nerve involvement strongly suggests a selective property of the infecting spirochete. Another striking feature in this group of cases is the slight and almost complete absence of invasion of other tissues preceding the involvement of the central nervous system.

CONCLUSIONS

1. Ophthalmoplegia interna is a rare condition; it may be familial.

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[1] Drysdale, H. H.: Conjugal Paresis, The Journal A. M. A., July 29, 1916, p. 340.

2. It may be the only objective evidence of congenital syphilis of the central nervous system.
3. All offspring should be carefully examined for latent syphilis when the parents are known to be infected.
4. When evidence of latent syphilis is found, treatment should be instituted; it must be continued until all clinical and biologic evidence of the disease disappears.
5. In my cases, the condition is due to a strain of spirochete which probably possesses a selective property for nerve tissue.

NOTE.—Later observation of these cases has disclosed some interesting facts. The father has developed frank paretic symptoms and has been committed to a state institution. In the oldest child, P. H., whose pupillary phenomena had begun to return, the pupils have again become completely immobile. He has developed marked weakness of the lower extremities, bilateral Babinski reflex, bilateral ankle clonus, increased knee and ankle jerks, and a slightly spastic gait.

Through the courtesy of Dr. B. Sachs, the two children with the spastic paraplegia were taken into his ward at Mount Sinai Hospital for arsenobenzol injections. They have received to date two intravenous injections of 0.2 gm. each. As yet, no improvement in their symptoms is discernible.

The cerebrospinal fluid, as well as two examinations of the blood, in these children and the mother, showed a + + + + Wassermann reaction.

1 West Eighty-Fifth Street.

The Drying of Vegetables.—The process of drying as a preservative process for vegetables is being rapidly extended, both as a matter of conserving food products that now go to waste, and as helping to solve transportation burdens. A new process, in use in several plants in this country, consists in using heated air at a lower temperature than is usually employed abroad, and insuring a thorough circulation of the air currents so as to reach every particle of the fruits or vegetables undergoing desiccation. The residual water is well inside 12 per cent., and the desiccating process does not injure the cellular membranes of the vegetable matter. Depending on the amount of water in the vegetables, the process may be completed within two and a half to five hours, about half the time of the foreign process. The products retain their fresh taste and full flavor when prepared for the table, and on account of their cellular structure being uninjured they regain their normal fresh appearance after being soaked in water a short while. A truck load of mixed vegetables dried by this method will weigh only a hundred pounds and fill a barrel. Of soup vegetables, a pound will make soup sufficient for sixty persons. It will be seen that for naval or military purposes, or for feeding large bodies of men at points distant from sources of supply, this method of preserving food products offers great advantages.

UMBILICAL POLYP

WITH REPORT OF A CASE

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Umbilical polyp is a remnant of the omphalomesenteric or vitelline duct. Normally on the fifth or seventh day after birth the umbilical stump drops off, and in a few days the remaining surface closes over. With umbilical polyp, the region of the navel remains bright red with a granular appearance following the separation of the stump. It bleeds easily, resists local treatment, and a painless, bleeding condition continues for months or years. Persistent weeping from a cord stump in infants is often due to a patent omphalomesenteric duct.

This granular looking surface is revealed by the microscope to consist of intestinal mucosa with villi, glands of Lieberkühn, goblet cells, muscularis mucosa, etc. The presence of intestinal mucosa is explained by the fact that in the early embryo the omphalomesenteric duct communicates with the digestive tract. At the beginning of embryonic life the yolk sac, which is spherical, communicates with the intestine by a wide opening. A little later the yolk sac becomes constricted from the embryo, but remains connected with the intestine by a narrowed portion known as the omphalomesenteric or vitelline duct. Finally the yolk sac becomes incorporated with the placenta, and the omphalomesenteric duct as a filament of cells runs through the entire length of the umbilical cord. Usually during fetal life the proximal part of the duct lying between the intestine and the umbilicus degenerates and disappears. In a small number of cases it does not disappear, but retains its lumen and continues to connect the intestine with the umbilicus.[1]

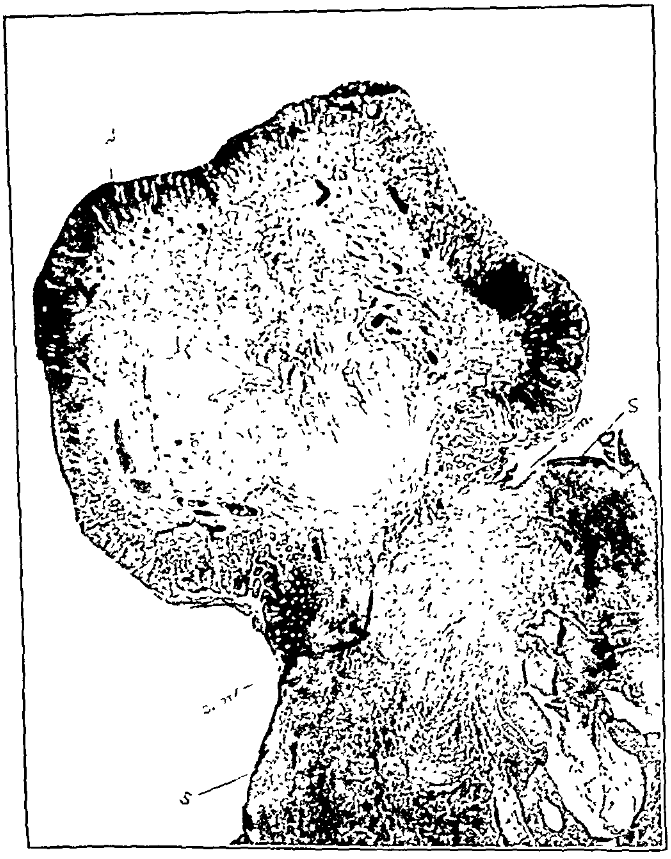

Fig. 1.—Longitudinal section of polyp; *s m*, line of junction between skin and mucosa; *m*, mucosa; *s*, skin.

The umbilical polyp may be closed or patulous. If patulous, fecal contents escape and a probe can be inserted through the fistula into the bowel. The amount of discharge depends on the caliber and tortuosity of the duct. Occasionally the opening may be so concealed in the umbilical depression that detection is difficult. In such cases one may be at a loss to explain the fecal discoloration and odor on the dressing. Through an omphalomesenteric duct of large size, the small bowel may prolapse.

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[1] The embryology of the omphalomesenteric duct is described and illustrated by Cullen, Thomas S.: Embryology, Anatomy and Diseases of the Umbilicus, Philadelphia, W. B. Saunders Company, 1916.

REPORT OF CASE

History.—A. B., a girl, aged 12 years, Italian, with negative family and previous medical history, was brought for treatment of a small growth at the navel which wept and bled so freely that it stained her underclothing, and seeped through and soiled her dresses. Her mother said that the condition had existed since birth, and that the "cord never healed." There was apparently no pain, and the lesion did not increase in size. It was inconvenient only because of the annoyance from the bleeding. The mother had never detected any fecal odor or discoloration on the dressings. In recent months the amount of bleeding had markedly increased.

Examination.—Filling the navel fossa was a circular bright red granular looking surface 1.75 cm. in diameter and elevated about 0.5 cm. above the surrounding skin. There were no impulse, no evidence of umbilical hernia and no weakness of the rectus muscle. On probing I found no communication leading from the external surface. The Wassermann and von Pirquet tests were negative.

Treatment.—A 4 inch elliptic incision around the umbilicus was made, and the polyp with the surrounding tissue was carefully dissected down to the sheath of the rectus muscle. At this juncture the structure narrowed to about 2 mm. On transverse section a patulous duct was found and a probe was inserted 5.5 cm. into the abdominal cavity. On account of the firm abdominal wall, no effort was made to dissect beyond the muscle sheath. The duct was ligated, and the stump touched with the actual cautery and buried beneath the rectus sheath. Recovery was uneventful. The parents were advised of a future possibility of intestinal obstruction.

Pathologic Report (by Dr. Benjamin T. Terry, director of the Brooklyn Laboratories of Pathology). — Macroscopically the specimen consists of a mass of skin measuring 2 by 2.5 cm. Projecting from this skin is a mass of grayish tissue 0.7 cm. in diameter. On section this mass is grayish, and appears to have a rich blood supply.

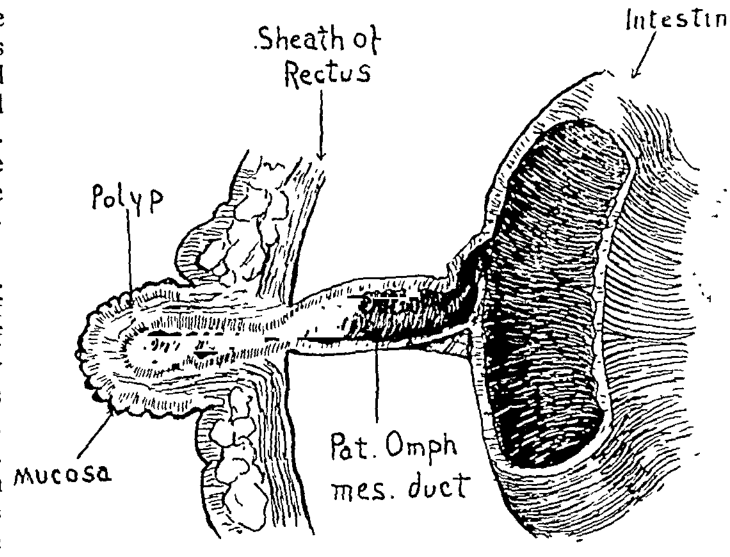

Fig. 2.—Umbilical polyp, sectional view; a similar condition is illustrated and described by Cullen, Figure 66, p. 121.

Microscopically, sections show skin from which a polypoid mass of tissue arises. The polyp is covered externally by a mucosa which resembles that of the small intestine. In the mucosa can be distinguished villi which show a cuticular border, glands of Lieberkühn, many goblet cells, a tunica propria, and a muscularis mucosa. Beneath the muscularis mucosa is seen connective tissue through which thick bundles of smooth muscle fibers run. Dilated blood vessels are numerous in the tunica propria, in the muscularis mucosa, and in the connective tissue below this. On each side of the polyp the mucous membrane comes in close contact with the epithelium of the skin. There is, however, no evidence of transition between the mucous membrane and the skin. The epithelium covering the skin is thin, but the skin appears normal. In some of the sections the central portion of the polyp is occupied by a large mass of fatty tissue which is so thin that on macroscopic examination of the slide the central portion seems to be almost hollow.

COMMENT

The method described above is the one most frequently employed in the reported cases. Since there is always a possibility of the polyp being attached to a Meckel's diverticulum, or connected with one, with subsequent danger of intestinal obstruction, probably the wisest thing to do is to dissect down to the attachment with the intestine, and if a Meckel's diverticulum is found, to tie it off at the intestinal junction.

PHLEGMONOUS GASTRITIS *

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The principal object in mind in taking up the subject of phlegmonous gastritis is that this subject is particularly rare and the cases reported in the literature very few. The earliest known description of a case is in a communication by Verandaeus in 1620. In 1839 Androl and Cruveilhier appear to have been the first to have observed the diffuse form. In the seventeenth and eighteenth centuries there are only three or four reports. In 1896 there appeared an admirable monograph by Leith[1] of Edinburgh in which he gave short abstracts of fifty-one cases which he had gathered from the literature. Later on, an assistant of Moynihan reviewed a part of the literature. In 1900 Max Jacoby[2] reported two cases that had come under his personal observation. He also reviewed all the cases then reported in the literature, numbering about sixty-four. He gives an exceedingly scholarly résumé of the etiology, pathology, symptoms and causes of the disease. All in all, his monograph is a classic.

In 1907 Cecil[3] of Johns Hopkins reported a case, and also gave a short outline of other cases reported in the literature since the review by Leith. In this thesis there is an endeavor to report a case and to review all the literature from the time of Cecil's report in 1907 up to Jan. 1, 1916. There are also in the bibliography references to a number of cases occurring in the literature between 1896 and 1907 which have not been quoted by Cecil. Up to the present time only a few more than 150 cases are reported.

During the years from 1904 to 1912 the subject received more or less attention from the German investigators. About that time phlegmonous gastritis was credited with three inaugural addresses before different hospital and college assemblies.[4]

The following is the report of a case that came under my observation:

History.—In the latter weeks of January, 1916, a laborer (night watchman and janitor) called me to his home. He was 63 years old and was living with his second wife. Four healthy children had been borne by the first wife. He had had an infected ear when a child, which resulted in a partial loss of hearing. Ever since he had lived in Lincoln (a period of three or four years) he had been subject to occasional coughing spells, when he raised some bright red blood. These occurred only once every three or four months. He had had some nasal catarrh for years. He had gained in weight during the last year. His habits were good; it was seldom that he touched alcoholics.

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* On account of lack of space, this article is abbreviated in The Journal by omission of a review of the literature. The complete article appears in the author's reprints, a copy of which may be obtained on application to the author.

[1] Leith, R. F.: Phlegmonous Gastritis—Its Pathology, Etiology, Symptoms and Treatment, Edinburgh Hosp. Rep., 1896, **4**, 51.

[2] Jacoby, Max: Ueber Gastritis phlegmonosa, Königsberg, 1900.

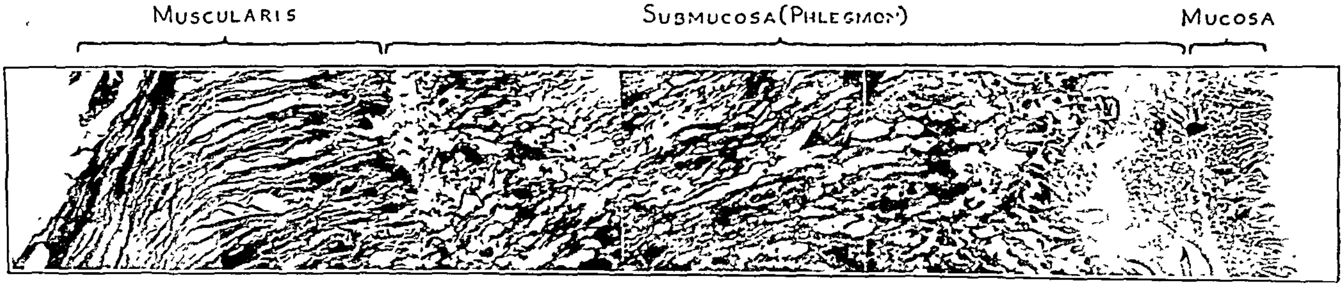
[3] Cecil, A. B.: Phlegmonous Gastritis, Johns Hopkins Hosp. Bull., 1907, **17**, 336.

[4] Herrmann, Oskar: Ueber die Phlegmone der Magenwand, Munich, 1912. Mau, Heinrich A.: Ueber Gastritis phlegmonosa, Inaug. Diss., Kiel, 1904.

He complained of a general aching; his throat was sore; he coughed slightly, and had headache and backache. The temperature was moderately elevated. Physical examination revealed nothing more than an acutely inflamed throat. I concluded that he had a grippal infection, advised accordingly, and left him.

Almost a week later I was called to see him again. He had not returned to work in the meantime. He had had a slight chill the night before, and had vomited most of the night, and more or less in the morning. The vomitus was yellow; no blood was observed. He said that his bowels had moved somewhat, but he felt that the movement was not sufficient. He complained of some pain in the left epigastrium. An hour before I arrived he had retained some fluids. He was thirsty. His temperature was 102¼, the pulse, 120. Physical examination revealed a somewhat dry tongue, fairly well furred. There was some tenderness in the epigastrium, extending slightly to the left. There was some resistance in this area. No mass could be palpated. The remainder of the abdomen was soft. There was no distention whatever. The urine showed no abnormalities.

The next day I called again. The temperature was 102½, the pulse 114. There had been little vomiting, and no movement of the bowels. The patient looked ill; he was groaning with pain, was restless, and had slept very little. His face was somewhat pinched. The epigastric pain was more intense. The patient, however, could drink milk. The area of tenderness had extended downward and slightly to the right. There was a little resistance in the left hypochondrium, but the abdomen as a whole was absolutely soft.



Photomicrograph of section of stomach wall, showing extent of the phlegmon. Note scarcity of normal tissue between mucosa and muscularis; the space is practically filled by phlegmon. Note also the spaces in the muscularis where the muscle fibers are separated by seropurulent material.

A surgical consultant was called. We could not conclude what the difficulty was. A dose of castor oil was ordered, with instructions to save the stools if there were any.

The next day the consultant and I called again. Large fluid evacuations had occurred. The stools were not characteristic of any abnormalities. The epigastric pain was severe. The patient was groaning; he was restless. He had been a little delirious during the night. However, he had retained a fair amount of milk. The temperature was 102, the pulse 110, the urine negative.

That evening I called and the patient complained less. The next morning there was no distinct change. He had had a restless night. There had been some delirium; the tenderness was probably a little lower. That evening both the consultant and myself were called. The patient was groaning with pain, rolling about somewhat, he felt very ill, and was thirsty. The temperature and pulse were practically the same. The pain and tenderness had extended downward almost to the level of the umbilicus. There was some distention; the tongue was dry and furred. We felt that a peritonitis was extending from the upper abdomen downward. Its origin we did not know. We decided that an exploratory laparotomy was indicated. The patient was removed to a hospital, and an operation performed.

Operation.—It revealed a peritonitis most pronounced at and near the stomach. Almost the entire stomach was covered with a fibrinous exudate. The stomach was somewhat enlarged, and the walls felt very thick and boggy. The infection had evidently started at the stomach. There was no ulcer or cancer or any other pathologic condition that could be looked on as the original source of the infection. The abdomen was closed with drainage. There was a good recovery from the anesthesia, but the patient died in twenty-four hours.

Necropsy.—A partial postmortem was permitted, but not until after the body had been injected by the undertaker. The stomach was the chief point of interest. As a whole it was somewhat enlarged. It was more or less covered by a rather thick fibrinous inflammatory exudate. The veins were prominent and somewhat congested. The walls felt thick and edematous. At least two thirds of the stomach wall was involved. When the stomach was opened an ounce or two of a thin, yellowish fluid was found. The cut surface of the wall was an inch in thickness. Pus exuded from the cut surface, and an unusual quantity could be expressed. The mucous membrane was partially covered with a mucofibrinous exudate. The submucosa was markedly thickened. The thickness of the entire wall was due almost entirely to the condition within the submucosa. It was yellowish white, and an unusual quantity of pus could be expressed from this layer also. The muscular coat was somewhat thick and congested. The outer coat demonstrated an acute fibrinous peritonitis.

Microscopic examination revealed that the thickness of the stomach wall was due particularly to the infiltrate in the submucosa. There was probably a little round-cell infiltration in the mucous membrane, but it was difficult to tell on account of the character of the normal glands. In the submucous layer the structures were widely separated by the inflammatory exudate. It was difficult to find the blood vessels, which were also widely separated. Some vessels were thrombosed. The exudate was made up of round cells with some fibrin. The round cells were practically all polymorphonuclear. The blood vessels seemed dilated, and had a tendency to thrombose. In some areas the entire original structure was replaced by the infiltrate. The muscular layer was also invaded by the multinuclear round-cell infiltrate. The muscle bundles were also widely separated. The pancreas and the kidneys both showed an acute degenerative process. This was an important finding, as it showed the absorption of a rather severe toxin.

Bacteriologic examination was not made; streptococci, however, could be seen in the tissue section. No other organs were examined microscopically.

A pathologic diagnosis of acute, diffuse idiopathic phlegmonous gastritis, with acute peritonitis and acute degeneration of pancreas and kidney, was made.

PROGNOSIS

The prognosis is extremely bad. In all the cases reported in which the diagnosis of general phlegmonous gastritis was beyond question, there is mention of only one case which did not terminate fatally.

TREATMENT

The treatment is merely expectant. These cases have been attacked surgically. F. Koenig[12] succeeded in making a resection of the stomach in a case of true diffuse phlegmonous gastritis, with recovery. This is the only case of recovery on record. There are a number of other cases of successful operations reported, as those of Hemmeter, Bovec,[13] and others. In none of these, however, was a true phlegmon present, but on the other hand all were abscesses, or an infection extending into the tissue from an ulcer or cancer.

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[12] Koenig, Fritz: Ueber Magenwand phlegmone im subakuten Stadium und eine Heilung durch Magenresektion, Deutsch. med. Wchnschr., 1911, **37**, 631.

OVERLOOKED COMMON DUCT STONES *

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CHICAGO

The object of this paper is to direct attention to two conditions, the existence of which is not sufficiently well known if we wish to lessen the number of recurrences following operations on the bile passages. These conditions are:

1. Calculi may be present in the common or hepatic ducts without giving rise to the symptoms which we have always considered pathognomonic of calculi in these locations.

2. Even at operation when the common duct is palpated to determine the presence of calculi, they may be found in a certain percentage of cases even if our usual methods of palpation yield negative results.

By the expression "usual methods" I refer to the fact that the segment of the common duct which is almost invariably palpated is the supraduodenal portion. Calculi lying in the retroduodenal division, that is, just above the ampulla, are not palpable through the overlying duodenum unless they are of relatively large size or unless the mobilization incision of Kocher has been employed to expose the retroduodenal portion for direct palpation.

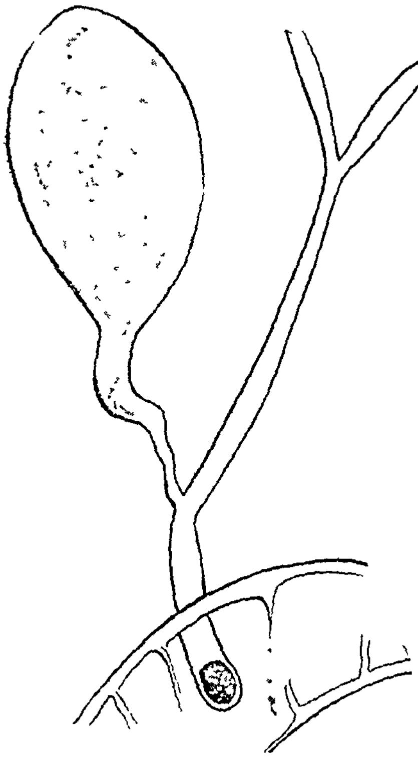

Fig. 1.—Removal of gallbladder with large calculus two years before by another surgeon. Recurrence of symptoms (pain with slight icterus) eighteen months later. Negative palpation of common duct but calculus size of navy bean found just above ampulla in retroduodenal portion of common duct at second operation.

I became interested in the question of the "overlooking" of common and hepatic duct calculi at operation, after reading an article by Kehr.[1] In seventeen, or 46 per cent., of thirty-six cases in which palpation of the common duct was negative, he found calculi in either the hepatic or the retroduodenal portions of the common ducts. The reason such calculi are often overlooked or rather why they are not felt is that they swim in the stagnant bile or lie just above the ampulla in the retroduodenal portion, which is not readily accessible to palpation. Kehr, in the paper referred to and in subsequent publications,[2] states that in about 20 per cent. of all of his cases the common duct calculi belonged to the latent class, that is, produced no symptoms, such as icterus, chills and fever, which we have always considered to be characteristic of such calculi.

During the past four years, in the course of a large number of operations on the biliary passages, I have explored the common and hepatic ducts in thirty cases in which palpation was negative. In ten (33.3 per cent.) of these, calculi[3] were found on exploration in spite of negative palpation. None of these thirty patients died, and I am confident that the mortality will not be increased in the hands of other surgeons if a rapid technic[4] for exploring the common and hepatic ducts is developed by the surgeon.

Of the four indications given by Kehr, three have seemed to me of especial importance, in the order named: (1) the presence of many small calculi in the gallbladder or cystic duct; (2) an enlarged, thick walled common duct; (3) the presence of chills, fever or icterus. To these I would add a fourth: recurrence of pain or symptoms of cholangeitis (chills, fever, etc.) after previous operations, such as drainage or removal of the gallbladder, or even after previous choledochostomies. In two of my ten cases with positive findings (although even my palpation had been negative), operation had been performed by other surgeons (Fig. 1).

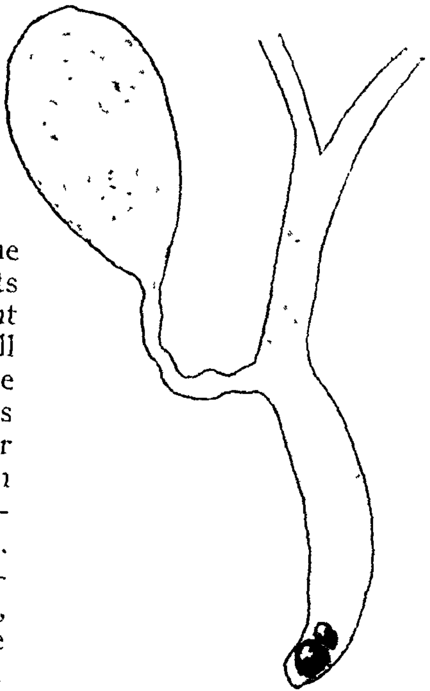

Fig. 2.—Cholecystostomy without finding calculi two years before by another surgeon. Recurrence of symptoms eighteen months later (pain, icterus, chills and fever). At second operation negative palpation of common duct, but two calculi the size of peas found at lower end (just above ampulla) of common duct.

In one of these, the gallbladder had been explored without finding calculi and then drained. Eighteen months later the patient began to have pain in the right hypochondrium with icterus, and I operated on him. The gallbladder walls were thick, but no calculi were found. The common duct was of the size of two adult thumbs, thin walled and negative on palpation. On exploration of the common duct, a calculus the size of a navy bean was found just above the ampulla.

In a second case the greatly thickened gallbladder containing a large calculus impacted at its neck had been removed by one of my colleagues. Two years later the patient began to have pain in the epigastrium, icterus, chills and fever. I found the common duct greatly enlarged, and although palpation was negative, two faceted calculi, the size of a navy bean, were found just above the ampulla (Fig. 2). In neither of these cases were any symptoms referable to the common duct calculi present at the time of the primary operation, and there has been no recurrence since the secondary one.[5]

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[13] Bovec: Suppurative Phlegmonous Gastritis, Am. Jour. Med. Sc., May, 1908.

* Read before the Elkhart County, Indiana Medical Society, Nov. 2, 1916.

[1] Kehr: When, During the Course of Gallbladder Operations, Shall We Open the Common Duct if Palpation is Negative? Arch. f. klin. Chir., 1912, **97**, 301.

[2] Kehr: Monographs on surgery of bile passages, 1913.

[3] In six cases the common duct calculi were of such size as to render it improbable that they would have passed into the duodenum spontaneously.

[4] The author's technic and the later work on the surgical anatomy of the region will be given in a second paper, which will be furnished on request.

The chief indication for opening the common duct in eight cases in spite of negative palpation was the presence of many small calculi in the gallbladder. In all of the eight cases of positive exploration after negative palpation the number of calculi in the gallbladder varied from twenty to 300.

In three cases (Fig. 3) the common duct calculi were the size of a pea, faceted, and fifteen in number. In the majority of the ten cases the calculi were found in the retroduodenal portion of the duct. In two cases a number of small calculi of the same size (Fig. 4) and composition as those in the gallbladder and common duct were either found in the hepatic duct or escaped in a perfect shower from this duct while the edges of the opening in the common duct were retracted. In one of these patients there has been a recurrence of symptoms in spite of a cholecystectomy and choledochostomy with removal of calculi from the common duct.

The articles of Poore,[6] Beer,[7] and Lewisohn,[8] have directed attention to the importance of intrahepatic cholelithiasis, and the three last cases are in all probability due to the formation of calculi in the intrahepatic bile passages and explain some of the cases of recurrence even after removal of calculi and drainage of the common and hepatic ducts.

In eight cases in which no previous operation had been performed, the principal symptoms were:

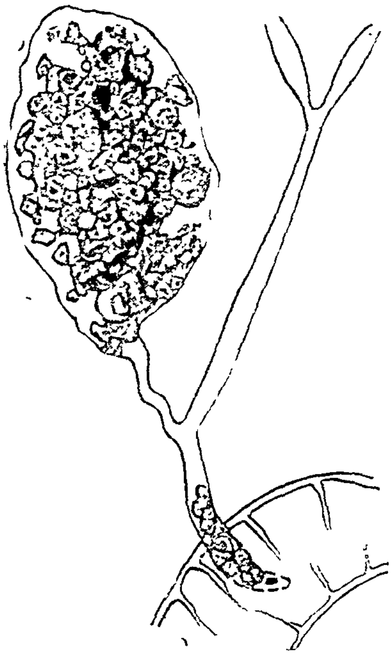

Fig. 3.—Typical findings in a case in which many small calculi were present in the gallbladder and palpation of the common duct was negative, but calculi the size of a pea were found embedded in thick bile at the lower end of the common duct (just above the ampulla).

1. Pain, for months to years, not to be distinguished from that due to the gallbladder.

2. Icterus, slight and only during attacks of pain in three cases. In one case there had been distinct icterus during one attack. In the remaining four cases there was no icterus at any time.

3. Chills and fever, present in only one case of the eight. The common duct varied in size from a little finger to a thumb. The pancreas was hard and enlarged in only three of the ten cases.

The systematic exploration of the common and hepatic ducts has not increased the mortality in my experience. The fact that symptoms pointing to common duct calculi were absent in the majority (six of ten cases) shows that we have a clinical group of silent or latent calculi which may escape palpation by the surgeon unless he is prepared to make a thorough exploration of the bile passages if the indications just given are present.

The finding of calculi in the hepatic and common ducts in ten of thirty cases after negative palpation of the common duct shows how easy it is for one to overlook such calculi. With more thorough search for calculi in the common and hepatic ducts, our percentage of recurrences must rapidly decrease.

It is my practice to open the gallbladder first, and after the calculi have been taken out to use it as a tractor while the common duct is opened in its supraduodenal portion. After the common and hepatic ducts have been explored, the calculi removed and a T shaped drain inserted, a cholecystectomy is performed as the last step in suitable cases.

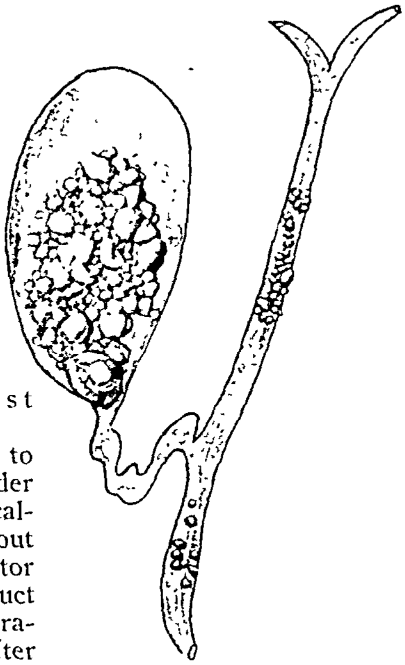

Fig. 4.—Case showing simultaneous presence of calculi in gallbladder, and the cystic, common and hepatic ducts; the last named illustrates how recurrences may be due to intrahepatic cholelithiasis. At operation, palpation of the common duct was negative but many calculi were found at the lower end and also many escaped in a shower from the direction of the liver.

CONCLUSIONS

1. In 20 per cent. of cases of calculi in the hepatic and common ducts, either no symptoms indicative of their presence are found or they are overshadowed by those of an accompanying gallbladder condition.

2. In the past four years calculi have been found at the lower end of the common duct in ten of thirty cases in which palpation was negative.

3. Exploration of the common duct does not increase the mortality, and should be done whenever one of the indications given above is present.

4. Recurrence following operations on the gallbladder and common duct may be due to overlooked or newly formed calculi in the intrahepatic bile passages.

30 North Michigan Avenue.

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[5] Since reading this paper, I have removed three calculi, the size of a pea, from the common duct *in a* patient on whom a previous drainage and later removal of the gallbladder had been *done* by another surgeon. At the first operation a large number of small calculi were removed and the common duct found *negative* on palpation. The gallbladder was removed three months later on account of a biliary fistula due to a stone in the cystic duct. Jaundice *and* fever followed the second operation and three months later I found the common duct greatly dilated and one of the three calculi impacted in the ampulla of Vater.

[6] Poore: Surg., Gynec. and Obst., 1912, **15**, 634.

[7] Beer: Arch. f. klin. Chir., 1904, **74**, 301.

[8] Lewisohn: Ann. Surg., 1916, **63**, 535.

Danger of Quick Cure in Skin Diseases.—A cure, if possible, should be brought about as quickly as practicable. The belief of the laity that impurities are trying to get out, and that it is, therefore, dangerous to the general health to cure or to cure too rapidly, and which formerly found honest believers among physicians, is wholly without foundation. This view has been strongly supported purposely by advertising nostrums, and has likewise been a convenient cloak for medical advisers helplessly at sea in cutaneous therapeutics. On the contrary, the putting of the skin, an important organ and emunctory of the body, into a healthy state, will not only relieve the patient of an annoyance and worry, but conduce to his general well-being. The main difficulty, unfortunately, in many diseases is our inability to cure quickly enough.—Stelwagon, Diseases of the Skin, Ed. 8, 1916.

THE ROENTGENOGRAPHIC DEMONSTRATION OF THE SUBDURAL SPACE

ITS SIGNIFICANCE IN THE DIAGNOSIS OF INTRASPINAL LESIONS *

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Despite accurate diagnostic methods and careful study, tumors and other lesions of the spinal canal are by no means always found, at operation, at the level to which the physical examination points. There is, besides, a definite group of cases in which the diagnosis of intraspinal tumor is considered probable and in which the operative findings are negative or indicate the existence of spinal sclerosis. Finally, the presence of multiple tumors, situated at different levels of the spinal cord, cannot be established with any certainty before operation. In other words, the most painstaking neurologic examination, as at present constituted, falls short not infrequently in the determination of the presence of a spinal tumor and of its level, and in the diagnosis of multiple tumors at different levels.

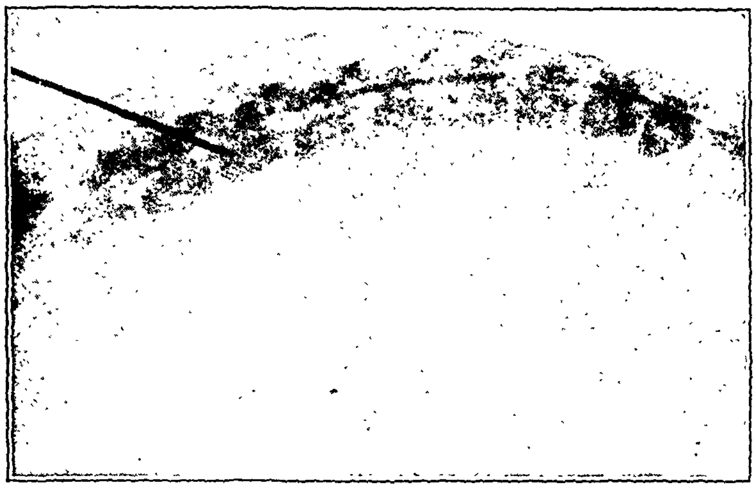

Fig. 1.—Outline of the dorsolumbar part of the subdural space by collargol.

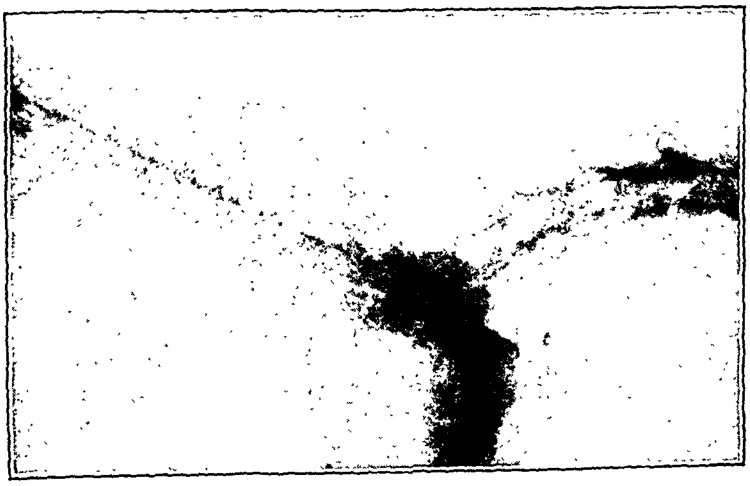

Fig. 2.—Outline of the cervicodorsal part of the subdural space.

As a result there are performed not a few unnecessary operations, or operations at incorrect levels. A method, therefore, was sought to aid in the accurate localization of all extradural, intradural or expanding intramedullary lesions— that is, of all lesions that encroach on the space occupied by the cerebrospinal fluid.

The method, as worked out in animal experimentation (dogs), consists in lumbar puncture done under full ether anesthesia, the evacuation of from 2 to 3 c.c. of cerebrospinal fluid, and its replacement by an equal amount of 10 per cent. collargol solution introduced by gravity. Anteroposterior and lateral roentgenograms of the spine are then taken. The roentgenograms are striking and uniform in the delineation of the subdural space. Except in the cervical region, the lateral are much clearer than the anteroposterior pictures. The roentgenogram is that of a sharply outlined strip on each side of the spinal cord. These strips or columns represent, of course, the cylinder of collargol-impregnated cerebrospinal fluid surrounding the cord; the roentgenogram, having been taken "on the flat," brings out in relief the strip of fluid on each side of the cord. Stereoscopic pictures would give a more rounded effect.

It will be noted (Figs. 1, 2 and 3) that the shadows outlining the subdural space are remarkably smooth and uniform in the normal animal, presenting only slight variation in diameter at different levels of the cord. They are entirely free from any sharp indentations. If a foreign body (in imitation of a tumor or any other compressing lesion) is inserted either extradurally or intradurally, the collargol outline of the canal either stops abruptly or is sharply indented, depending on the size of the foreign body. For examples, Figures 4 and 5 were taken one week after laminectomy in the lower dorsal region and extradural implantation of a thin sliver of laminaria. The dog was reanesthetized and collargol instilled. As corroborated by subsequent dissection, the parallel columns of collargol begin to converge a short distance below the moderately swollen foreign body, and come to a point a few millimeters above its upper end.

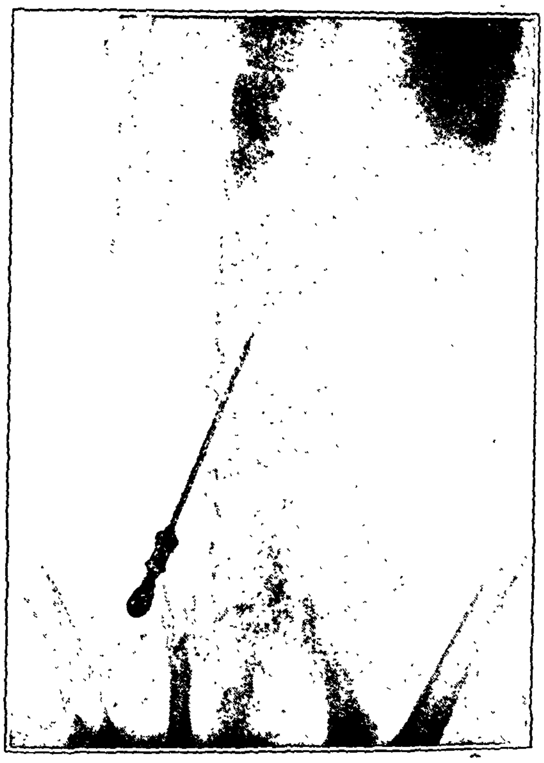

Fig. 3.—Outline of the lumbar subdural space, anteroposterior view.

Although not quite germane to the subject, a few observations of interest which appeared in the course of this work will be briefly noted: 1. Judging by the roentgenograms, the space occupied by cerebrospinal fluid posterior to the cord is normally wider than the anterior. If this exists in the human being it suggests

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* From the Department of Surgery, Columbia University, College of Physicians and Surgeons.

an explanation for the fact that most spinal tumors are found dorsal to the cord. 2. Collargol roentgenograms outline clearly not only the spinal cord proper but also the cauda equina. 3. The collargol solution was introduced by gravity with the dogs in the prone posture, and therefore was free to enter the cerebral subdural space in the absence of any artificial obstruction. As a result, striking outlines of the cerebral and cerebellar convolutions were obtained (Figs. 8 and 9).

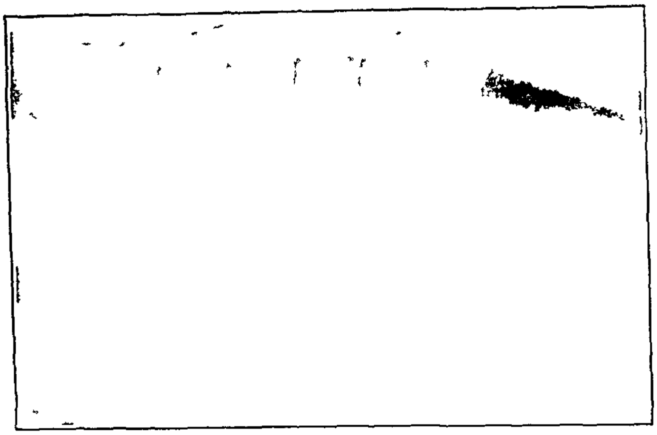
Fig 4—Laminectomy in lower dorsal region and extradural insertion of foreign body (laminaria), before collargol injection

4. It is remarkable to note how small a quantity of collargol solution—as little as 2 c c—is required to outline the entire cerebrospinal space.

The introduction of collargol into the subdural space of dogs was followed by shock and convulsions in several instances. Twice it appeared to be fatal; that is, the animals never recovered from ether anesthesia. It is true that, in human beings, the flow of collargol into the cerebral subdural space would be prevented by placing the patient in the sitting or reclining posture, and by holding the funnel containing the solution no higher than the second or third cervical spine. Nevertheless (and despite the fact that the reports of its use in the treatment of meningitis do not suggest that it is dangerous) the intraspinal injection of collargol in human beings might be followed (as in the reported experiments) by serious manifestations and, therefore, cannot be advocated as a diagnostic procedure. In considering the application of the method to the human being it is certainly most desirable to employ a radioactive solution that gives greater likelihood of freedom from toxic or irritating effects. Thorium offers itself as such a solution. In the hands of Burns, who first described it is a substitute for collargol for roentgenography of the urinary tract, and of others, thorium has proved free from irritating or toxic symptoms. The roentgenograms are as clear and as sharp as those following the introduction of collargol. The questions of strength of solution, amounts, the probability or improbability of well defined pictures in the thicker spinal canal of the human being, etc, will be the subject of further investigation

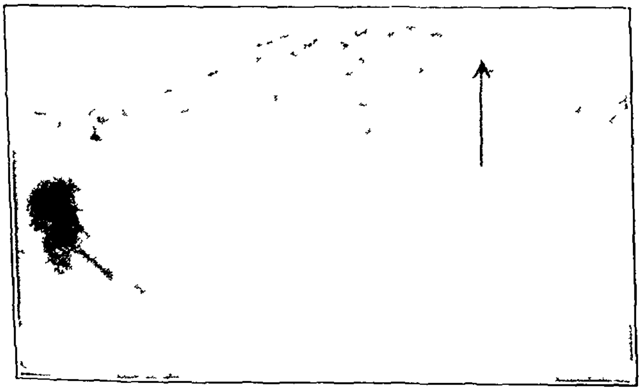
Fig 5—Collargol roentgenogram one week after extradural insertion of laminaria, revealing gradual narrowing of the subdural space and termination at the point indicated by the arrow, the outline of the cauda is indistinctly seen.

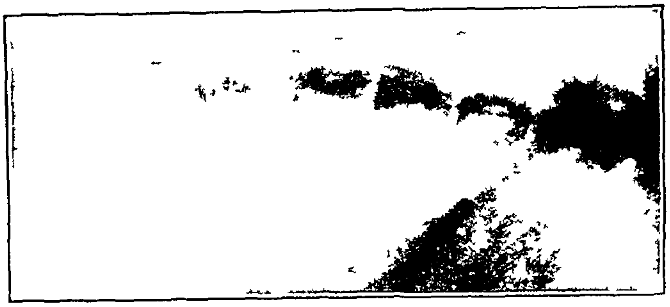
Fig 6—Lateral view of the effect of laminectomy and incision and suture of the dura, illustrating the use of the method for graphic study

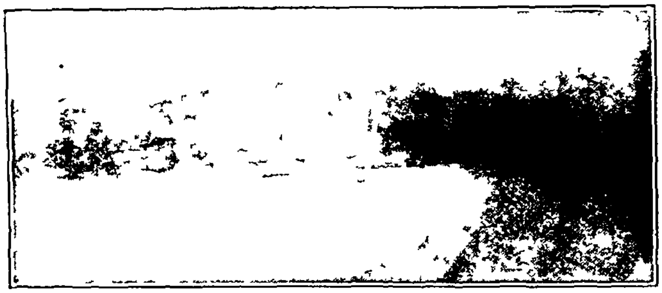
Fig 7—Anteroposterior view of the effect of laminectomy and incision and suture of the dura.

It may be added that it is my belief that in the intraspinal injection of relatively nonirritating or nontoxic solutions or suspensions of metals such as thorium may be found a method of treatment of various intraspinal lesions not amenable to surgical therapy. If this should prove to be the case there would be a great added advantage in the Roentgen demonstration and consequent control of definite local applications of the substance to the site of the lesions. In any event, it is

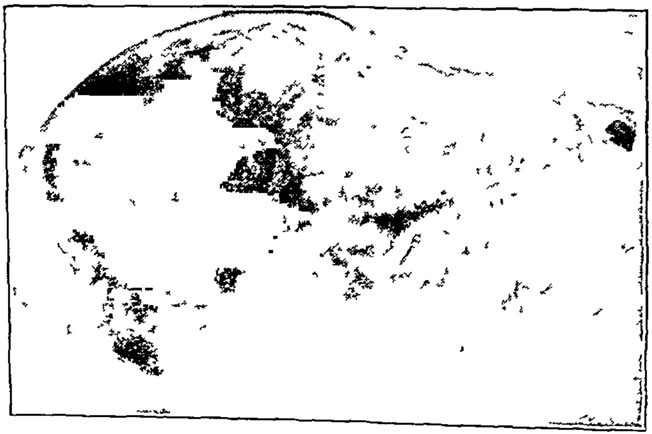
Fig 8—Outline of cerebral and cerebellar convolutions, lateral view

conceivable that the solution of the drug to be introduced into the spinal canal for therapeutic purposes could be admixed with the thorium solution to determine if, and how, the drug in question reaches intraspinal lesions.

The roentgenographic demonstration of the subdural space offers the following possibilities:

1. Experimentally: (*a*) a graphic study of the entire subdural space and of the surface morphology of the brain and spinal cord; and (*b*) a graphic demonstration of the effect of various experimental procedures on the configuration of the brain or spinal cord.

2. In the human being: (*a*) the demonstration of the exact situation of any intradural or extradural lesion encroaching on the spinal cord, or of any expanding intramedullary lesion; (*b*) the demonstration of multiple intraspinal lesions; (*c*) the demonstration of the absence of any encroachment on the cord; (*d*) a study of the effects of various operative procedures on the spinal cord or canal; (*e*) demonstration of local therapeutic application of drugs to intraspinal lesions, and (*f*) a graphic study of the normal and abnormal surface anatomy of the brain and spinal cord in the cadaver.

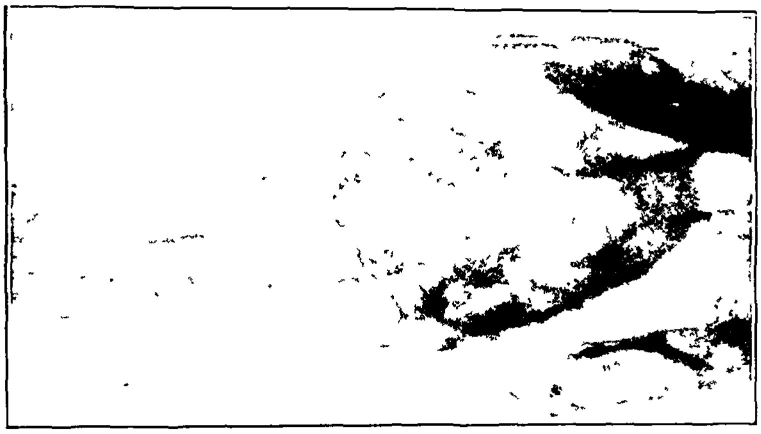

Fig. 9.—Outline of cerebral and cerebellar convolutions, viewed from above; the subdural space is seen; the definition of the convolutions is more clearly seen in the negatives.

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THE IMMUNE REACTION TO TUBERCULOUS INFECTION *

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One of the most important of Koch's observations revealed the fact that guinea-pigs already infected with tuberculosis respond to a second injection of tubercle bacilli quite differently than do normal guinea-pigs to a first injection. Following on this came the discovery that tuberculin produces an effect on diseased persons or animals which is different from that seen in the uninfected. These facts have led to the belief that the disease produces a constitutional alteration of such character as to modify the reaction of the organism to the causative agent or its products. To use the expression introduced by von Pirquet, the infected body becomes allergic. The cause of this alteration in reaction, in accordance with general conceptions derived from the study of immunity, is generally attributed to the production of specific antibodies. Such antibodies have been found in the blood in tuberculosis, and display various properties, such as agglutinative power, or complement binding capacity, when brought into contact with the tubercle bacillus or its derivatives. There is, therefore, some ground for the belief that circulating antibodies may be the essential factors, not only in the general reactions, but also in such a specific local response as the tuberculin reaction of von Pirquet. Opposed to this conception is the fact that the allergic condition, the altered reactivity, cannot, according to most observers, be transferred from an infected to an uninfected animal by means of the transfer of blood.

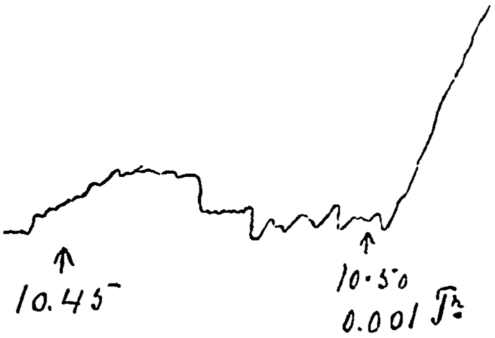

Fig. 1.—Reaction of uterus of tuberculous guinea pig to 0.001 c.c. of tuberculin.

The alternative belief has also been expressed, that the cells, and not the blood, carry the antibodies which are responsible for the altered reaction in tuberculosis. There is no direct experimental evidence in support of this theory. Bail,[1] indeed, by an indirect method, obtained results which he interpreted to mean that the cells possess antibodies, but his findings have not withstood the test of criticism.

In order to gain additional information, it seemed necessary to resort to methods different from those hitherto applied to the study of this problem. When tuberculin is injected intravenously, intraperitoneally or subcutaneously, into the living animal, it is evident that the resulting reaction may be due to substances either in the cells or in the blood, or in both; nor is there any way of separating these factors in the living animal. If, however, a tissue is removed from the body, it is clear that the reaction of the cells may be studied quite independently of that of the circulating fluids. In anaphylactic investigations, it is customary to employ this device by removing the uterus of the

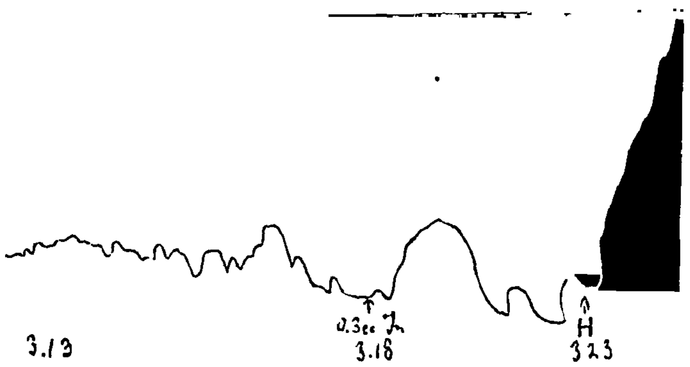

Fig. 2.—Reaction of uterus of normal guinea-pig to 0.3 c.c. of tuberculin. Histamin (at *H*) was added to test activity of muscle

sensitized animal, suspending it in some suitable solution, such as Locke's fluid, and then determining the effect of the antigenic substance on its muscular contractions. It has been regularly found that the antigen in minute amounts stimulates a prompt and violent response of the muscle, whereas the normal uterus fails to manifest any effect whatever. A permanent record is obtained by registering the uterine contractions by means of a writing lever on a revolving drum. The present paper reports on the application of this method to the study of guinea-pigs infected with tuberculosis.

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* From the Department of Experimental Medicine, Cornell University Medical College, New York.

[1] Bail: Ztschr. f. Immunitatsforsch., 1909-1910, 4, 409.

Without entering into a detailed discussion of the technic and of the data obtained, it may be stated that the uterus of an infected guinea-pig at some stage of the disease quite frequently presents a distinct contractile response to tuberculin in amounts which are without effect on the normal organ. The reaction is prompt and sharp, exactly as in the anaphylactic experiment. The accompanying tracings illustrate the striking difference between the normal and the tuberculous animals. The first tracing shows the effect of 0.001 c.c. of old tuberculin[2] on the uterus of a guinea-pig infected nine weeks previously with tuberculous sputum. The second tracing shows the effect of 0.3 c.c. of the same tuberculin on a normal uterus. It is quite evident that the former presents a prompt, pronounced, and prolonged contractile response, whereas the latter indicates only slight, if any, effect on the muscular tone. The dose of tuberculin was 300 times greater in the latter experiment. Not in every instance do tuberculous guinea-pigs possess a uterus which responds to tuberculin in this degree of dilution; but the normal organ practically never responds in this manner to less than 0.1 c.c. Thus it is clear that the uterine muscle cells of the diseased animals have a tendency to react in a characteristic and unmistakable fashion to tuberculin, and may therefore be said to be sensitized thereto.

If these results are interpreted in accordance with the data obtained in the past few years from the general study of anaphylaxis, they permit of certain definite inferences. In the first place, it may be assumed that the specific response in tuberculosis, as in serum anaphylaxis, is due to the presence of those substances described as antibodies. On the basis of this assumption, it is clear that these antibodies must be considered to be cellular, or "sessile," since it is only on this theory that the response of the isolated organ can be explained. It is not to be supposed that the uterine cells are the only ones of the body which contain the specific antibodies. In fact, it is highly probable that many, if not all of the tissues of the body are similarly altered by tuberculous infection, although the methods at present available do not permit of a demonstration of this fact. If this be the case, it seems highly probable that the various types of altered reaction referred to in the introductory paragraph of this paper, whether local or general, are to be explained on the basis of cellular sensitization to the agent of the disease and to its products. The details of the mechanism of these reactions, as well as of the partial immunity of the infected animal, will, perhaps, be found to correspond to analogous conditions in general anaphylaxis.

1000 Park Avenue.

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[2] Obtained through the courtesy of the Research Laboratories of the New York City Board of Health.

THE EFFECT OF SOAP ON TREPONEMA PALLIDUM

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I believe it is generally recognized that extragenital lesions obtained innocently through the barber's manipulations or utensils are of relatively rare occurrence. As to the incidence of other infections contracted from this source, I am not prepared to say. The preventive measures which the average barber employs are not such as should disturb the equanimity of the ordinary domesticated bacterium or spirochete. Even admitting that the organism of syphilis has but little resistance, there would seem, at first sight, many loopholes which this squirming, wriggling organism might take advantage of.

Zinsser and Hopkins[1] have shown that the *Treponema pallidum* may live eleven and one-half hours on wet towels exposed to room temperature and daylight. In a slide prepared for dark field examination and kept under somewhat similar conditions (room temperature and daylight), motility will persist for a number of hours.

Testicular juice rich in treponemata was obtained, according to the method given in a previous article,[2] from rabbits having fresh experimental lesions of the testicle. Only specimens containing from ten to twenty-five organisms to a field were used in this work. A solution of soap was prepared in distilled water, as strong as possible without solidification on cooling. (Ivory soap was first used but later discarded for the more nearly sterile shaving creams which come in the collapsible tubes. Of the latter preparations, both Johnson's and Colgate's were employed. No difference could be observed in the results obtained from any one of the three soaps.) Equal parts of testicular juice and soap solution were then quickly and thoroughly mixed and placed in focus on the dark field. For this, from fifteen to thirty seconds was required. In no case was I able to find a motile spirochete. Rarely were there more than one or two in a field, and frequently none, and those present rapidly disappeared. Those found were usually swollen and distorted out of their normal shape except in some cases in which they seemed to be adherent to the glass.

Three controls were made: the undiluted testicular juice, a mixture of equal parts of testicular juice and physiologic sodium chlorid solution, and a mixture of equal parts of testicular juice and sterile distilled water or tap water. In neither of the latter two was there any immediate appreciable effect, and in both mixtures motility could be observed for at least four hours while exposed to room temperature and daylight. In another series the soap solution was prepared in physiologic sodium chlorid solution, but the effect on the organisms was apparently identical with the distilled or tap water solutions.

In order to see if possible what had taken place, slides were prepared of the same testicular juice or serum, and while they were under observation in the dark field, soap solution was allowed to run in from the side. The resulting currents prevented much continu-

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[*] From the Department of Pathology, Army Medical School.

[1] Zinsser, Hans, and Hopkins, J. G.: The Viability of the Spirochaeta Pallida in Diffuse Light at Room Temperature, The Journal A. M. A., June 6, 1914, pp. 1802-1803.

[2] Reasoner, M. A.: Some Phases of Experimental Syphilis, The Journal A. M. A., Dec. 16, 1916, pp. 1799-1805.

ous observation of any one organism unless attached to something. Those coming into contact with the stronger soap solution lost their motility at once, and became swollen and distorted and much reduced in number. Those nearer the center of the cover glass which received only the attenuated solution, as shown by the absence of marked currents, became unusually restless, writhing and twisting and apparently trying to tie themselves in knots or, as one of my confrères expressed it, "acting as if they had the colic." Of those exposed to the action of the diluted soap solution, some became swollen and distorted while motion persisted, and others retained almost their normal contour. Farther in, where the soap dilution had not penetrated, the normal contour and motion were retained.

For purposes of comparison, the same experiment was carried out, a solution of mercuric chlorid (1:1,000) being used. Following a mixture of equal parts of the mercuric chlorid solution and testicular juice, no motile organisms could be found. There was not so much reduction in the number of organisms or so much swelling and distortion. They became granular and straightened out, and settled to the bottom. After the lapse of half an hour, they could be recognized as a sort of a granular straight line, but were fewer in number. When the solution was allowed to float in from the side, the organisms seemed to die more quickly throughout the slide, as one would expect, but did not evince the same symptoms of distress as with the soap solution.

The results of these experiments were sufficient to convince me that the organisms of syphilis will not live in the presence of a solution of soap of even a considerable degree of dilution, and that a lather, such as used in shaving, is sufficient, when brought in contact, to cause their immediate death. It is possible that some of the initial lesions on the face which have been ascribed to the barber may have been transmitted by a towel wet only in water, which towel has served to convey the infection from another patron or perhaps the barber himself. Another possibility is that the person, immediately after shaving and while still having many minute abrasions on the face, has submitted himself to osculatory salutes from an infected prostitute. It would seem that a solution of soap or lather, such as is used in shaving, should have some value as a prophylactic measure against syphilis, but, probably for several reasons, not equivalent to the mercurial preparations now in use.

State Commission's Physical Training Program.—The military commission appointed by the New York legislature for physical training in the public schools, composed of Major-Gen. John F. O'Ryan; State Commissioner of Education John H. Finley and Dr. George H. Fisher, secretary of the physical department of the Y. M. C. A. International Committee, has reported a constructive program of health education. A trained man as supervisor of physical training in every town of 5,000 or more, and in every union free school district, with supervised recreation, and the encouragement of health habits are some of the features of the plan. A syllabus on physical training has been prepared and sent to school superintendents and teachers throughout the state. It provides for daily medical inspections by the teachers for the most elementary classes, and sixty minutes a week gymnastic drill for more advanced classes. The physical work for lower classes is in the form of a two-minute setting up drill at the beginning of each class period. The recreational requirements are four hours a week, one under the supervision of school officials and the other three by equivalents in home or community activities.

SOME HOSPITAL PROBLEMS*

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The investigation and classification of hospitals, as now proposed by several agencies, is important, and promises good for both medicine and surgery.

Never have there been so many good surgeons as now, never has surgery been so well done, never have the results been more brilliant. It would be equally true to say that never has there been so much ill advised operative interference, with such disastrous results, as now.

Of the factors which make for good surgery, the modern, well equipped, well managed hospital takes first rank. Here is found every aid and incentive to better and yet better work; but well equipped as it may be in things material, the hospital which places its wards and its operating rooms at the disposal of all alike is a menace to the community. I refer to the open hospital as usually conducted in communities of from 3,000 to 100,000 inhabitants. Any criticism or suggestion I may make will be confined to such hospitals and will not refer to large city hospitals or to hospitals connected with medical schools. The open hospitals permit any practitioner to assume the gravest responsibilities within their walls, place their facilities at his disposal, and even provide him with a camera obscura which protects both him and the hospital from criticism and, too often, from well merited censure.

While it is true that the internist must face the most difficult and perplexing problems, yet there will always remain this difference between the internist and the surgeon: The internist's sins are those of omission, while the surgeon's sins too often are the sins of commission. Of the good done by surgery, I shall say nothing. Of the harm done in the name of surgery, there is no need to say much. How often we have listened to the story of repeated operations, the first perhaps poorly done, or wide of the mark, with a progressive aggravation of symptoms! We have all heard of the young married woman whose pelvis has been "cleaned out" by some operator. The open hospital is responsible for most of such work done in the name of surgery. I know of such a hospital with fifty beds, to the wards and operating rooms of which a hundred general practitioners of medicine have the privilege of bringing their patients. My informant reported this particular hospital as a closed hospital. When asked to name one physician within a radius of 25 miles who is denied the privileges of the hospital, he was unable to do so. He compromised by insisting that the hospital is not wide open, although he did not explain how it could be opened wider. That all the physicians in a given community are doing good work, within or without a hospital, is not claimed by any one.

THE STAFF

It has been said that "the staff makes the hospital," or, "as is the staff, so is the hospital." While practically true, these statements do not apply to the open hospital, because most open hospitals either have no staff at all, or have a nominal staff which meets "once in ten years," or "when a row is on." The great characteristic of the usual open hospital staff is an all pervading inertia, the most effective barrier to progress, and an utter failure to grasp the prime function of a hospital staff.

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* President's address, read before the Western Surgical Association, St. Paul, Dec. 15-16, 1916.

As I said in a former paper, written after investigating the hospital situation in a midwestern state: What is the chief function of a hospital staff? "The answer is very simple. The chief function of a hospital is to educate itself, individually and collectively, better to discharge the duties and obligations incurred by its members in accepting staff appointments. To serve its purpose, a staff must hold frequent meetings, at which not only hospital problems, but more especially medical problems must be discussed. Interesting cases must be presented for consideration. As failures are often more instructive than successes, these should be reported for free discussion. It is especially important that the causes of 'accidents' be thoroughly investigated and the responsibility fixed. Staff members should make frequent visits to medical centers, and every member making such a visit should present whatever is worthy for the benefit of his fellows. The operating room should be open to staff members and assistants at all times, and all operations should be bulletined. A weekly staff conference should be the rule in every hospital. As many members as possible should be invited to study interesting cases in the wards. Necropsies should be bulletined, and pathologic specimens carefully studied. In this way the experience of each staff member will become larger. It might be well for the staff to organize itself into a current medical literature club, the better to keep abreast of the times, and also to have its members present synthetic reviews on various topics, thus taking an active part in medical society work. With the improvement of the staff individually and collectively as the prime motive in staff organization, increased staff and hospital efficiency, and better service to the patient will be sure to come."

All this may seem elementary to those connected with great teaching and research hospitals, yet I failed to find one open hospital in the Middle West in which the staff either realized its opportunities or profited by them, along the lines suggested. Real progress will not be possible in these hospitals until staff members realize their delinquency, and become fired with a desire and an ambition to improve themselves. To feel the spirit of progress, and to feel the need of improvement are the all important first steps which will lead to better things. Unfortunately, this spirit is still unborn in the great majority of open hospitals in the Middle West.

ROENTGENOLOGIC AND LABORATORY SERVICE

The introduction of a good Roentgen-ray apparatus, and the establishment of clinical laboratories have acted as soporifics rather than as stimulants. It matters not that the ambitious operator reads into roentgenograms, even in bone cases, whatever his fancy may suggest; or that the laboratory reports are amateurish, or their interpretation anything but correct. Only recently I heard the president of a county medical society, in his retiring address, say, "With the x-ray and the laboratory, we are all equal; all of us can do our own work; consultants are no longer necessary."

Nothing can be hoped from men who blindly follow laboratory diagnoses instead of doing independent thinking. The day has not yet arrived, and never will arrive, when the Roentgen ray and the laboratory will make all men equal.

THE PUBLIC AND THE OPEN HOSPITAL

The evils of the open hospital of today do not appear to be self limited; there is no promise that they will be corrected from within; their eradication seems to demand some powerful influence from without. Publicity is the only efficient weapon. Once fully cognizant of the relative merit of different available hospitals, the public will make its influence sharply felt, to the advantage of the better hospital. If the hospitals of a given community are not high grade, the sick of that community, whenever possible, will seek relief in better hospitals, wherever they may be.

Evidence that the public is taking notice is furnished by the situation in one Middle West community: A religious organization built a hospital, accepting contributions from nearby practitioners, with the distinct understanding, it is said, that the hospital would be open to all physicians for the care and treatment of patients. One of the contributing practitioners, again, "it is said," made a contribution so much larger than any of the others that he was elected surgeon to the hospital. The surgical patients of the other practitioners were not accepted unless the hospital surgeon assisted at the operation, and received half of the fee. The hospital management, appealed to by the disconcerted practitioners, sustained the hospital surgeon. The courts will now be asked to decide whether a hospital board, after accepting contributions with the understanding that all practitioners be accorded equal privileges, may select one man to do all the surgery.

A successful hospital in one of the old middle states pays its surgeon a fixed salary; he resides in the hospital, and does all the general surgery.

THE RESTRICTED HOSPITAL

These two instances are the antitheses of the open hospital. Closed hospitals may be undemocratic, they may not promise the best for either the profession at large or for the general public; but somewhere between them and the wide open hospital there will be found a plan which will give every properly trained and right minded man an opportunity to work out his destiny, and which will protect the community. The open hospital must be transformed into a restricted hospital, and by a method that is fair — such a one as this: When a properly trained but untried licensed practitioner asks to use the operating room, the answer will be: "Yes, but like every other man operating in this house, you will bulletin your operation the evening before. The superintendent of the hospital and one or more staff members may be present. You are on trial, but so long as you have any privileges here, you will have all the privileges. You are welcome in the operating room when others operate, and at the weekly staff conferences. If your work is satisfactory, you may come again, and after a few years you may be elected to staff membership. But if your work is not satisfactory, why, we shall regretfully inform you that we have no unoccupied beds. This is not a closed hospital, but it is a restricted hospital."

I believe that the remedy is in sight, and that the next few years will witness much better work done in the type of hospital under consideration. The agencies which will bring about the desired change are several. As stated above, publicity is the most efficient weapon. A hospital management or a hospital staff which fails to react to ordinary stimuli will promptly take notice when the standing of the hospital in the community is menaced. Investigation and classification of hospitals, as planned by the American College of Surgeons, promises splendid results. I know that even the possibility of such action by the college has been productive of good.

THE HOSPITAL FIFTH YEAR

Another agency which cannot fail to make its influence felt, perhaps even more sharply than the American College of Surgeons, is the hospital fifth year, soon to be required by both medical schools and state examining boards. Minnesota, Pennsylvania, New Jersey, North Dakota, Illinois and Rhode Island have already taken definite action. The hospital fifth year not only will have a beneficent influence on the candidate for the degree and for the state license, but also will make it necessary for both medical schools and state boards to know whether or not the work done in a given hospital entitles it to recognition. The schools and the state boards must investigate the hospitals seeking interns. These keen-eyed young interns will report back to the medical school, and, possibly, to the state board. Their influence on the hospital will be most salutary.

THE NURSES' TRAINING SCHOOLS

Many hospitals, however, do not employ interns, and these will not be influenced by the hospital fifth year, or by the medical schools. The American College of Surgeons can reach them, but there is one other opening which will enable state boards to investigate and largely control them. All of these hospitals have training schools, and every graduate of the training school must present herself before the state board for examination, to secure her certificate of registration. This gives the board the opportunity and the right to acquaint itself with the work done in the school, to know whether the young women seeking recognition have been properly instructed, or whether they have been chiefly useful as revenue producers, by being assigned as special nurses to private patients, at 15 or 20 dollars per week, and this while still on probation. I have known this to be done, not once but repeatedly. I have known a young woman to write her parents during the third month of her training, while still a probationer, that she was getting along famously, having been assigned to "special" duty, and all this in a hospital pretending skilled service to the sick, but really conducting its training school for revenue.

I should like to say, "As is the training school, so is the hospital," because a good training school in a poor hospital is unthinkable, and the converse holds equally true. The state boards cannot classify hospitals, because the friends of a discredited hospital would immediately rise in arms, would term the action of the board arbitrary and unfair, and would soon set in motion political machinery embarrassing to the board, or to those members of the board considered responsible. But the board can inspect the training school, and carefully examine all applicants for state license. Should candidates be sent back for three or six months' additional preparation, neither the hospital itself nor its friends could protest without directing attention to the shortcomings of the training school.

It sometimes happens that a young woman, early in her course in training, comes to a realization of the fact that the instruction she is receiving is far from satisfactory. Let her try to gain admission to some other school, even if willing to forfeit the time already spent in training, and she will apply to many before attaining her object, if she succeeds at all. She will be requested to present a satisfactory certificate from the head of the school in which she is a pupil, and begin again as a probationer. The second requirement is not so objectionable; in fact, in many cases it is entirely reasonable; but an "honorable discharge" is not always to be had for the asking. The candidate for admission to the training school is on trial for three months, and at the end of this time she may be received or may be sent away. Would it not be fair that she be given a certificate at this time, stating that her probationary period has been satisfactory, and be granted the option to remain or to seek training elsewhere? These credentials might not be accepted by other schools; but they would be equivalent to an "honorable discharge," and enable her to enter another school without being required to ask her principal for a certificate of character and class standing, difficult to obtain should work be crowding and nurses none too plenty, or an exodus of nurses feared. More likely, she would be branded as a disloyal discontent, and the desired credentials refused. To be accused of disloyalty and discontent covers a multitude of virtues, in a training school pupil.

It is manifestly unfair to compel an inexperienced but intelligent young woman to spend three years in an inferior school just because she made a poor selection at the outset. The present arrangement is much in favor of the poorer hospitals and poorer schools. Their pupil nurses simply cannot get away, even when willing to forfeit all the time already spent in training. At my request, a young woman wrote twenty-five letters to as many different hospital training schools, asking for admission, and stating that she had spent one year in a local school, but that she felt she was not receiving the training she desired. Twenty-five replies were received, but not one school would accept her. The usual answers were, "We do not accept pupils from other schools," "We will not consider your application at all so long as you are in another school," or "You must first secure an honorable discharge from the school you are now attending." In no school would there be a vacancy for months. She had started wrong, and there was nothing to do but remain where she said she had begun. Only a few days ago, a hospital director, a physician, expressed himself thus on this point: "The record and standing of every nurse ought to be in writing, and given her whenever desired. As matters now stand, the intelligent, ambitious girl who comes to a realization of the fact that the training she is receiving is very inferior will not be received by another school, as the necessary papers will most likely be denied her, especially if other trainers are apt to follow."

In this great democratic country of ours, only the young woman in a training school is subjected to such thraldom. It is not fair. Of all women, none are quite so helpless as the pupil in a training school. Of all women, few are more autocratic, few more relentless, than the average head of the training school. It is time that a more liberal spirit should make itself felt in behalf of the young woman in training. The American Hospital Association might well consider this matter.

CONCLUSION

The investigation and classification of hospitals by the American College of Surgeons, by medical schools and by state boards, and the careful investigation of training schools by state boards are the agencies which will make for better service in hospitals.

To the foregoing there must be added a wholesome sentiment inculcated by leading medical men. Recently, in a Chicago clinic, I heard a refreshing statement by the teacher, who said: "We do not want our graduates to consider themselves specialists, we do not care to have them know how to do a given operation, but we want them to recognize surgical conditions, we want them to know how to make a diagnosis. If they wish to be surgeons, we want them to take additional training." There is a world of promise in words such as these. Young men taught in this manner must have a finer conception of their responsibilities.

In regard to the education of the surgeon, I wish to endorse all that has been said by Finney, Haggard, Jackson, and others; but I wish to emphasize especially conscience and honesty — not that these two essential attributes have been passed over lightly by any of the gentlemen named, but because they cannot be mentioned too often. No matter what his professional qualifications, the surgeon without conscience and honesty is poor, indeed.

TORSION OF THE OMENTUM

REPORT OF CASE

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I was called in consultation by Dr. G. M. Austin, Sept. 1, 1916, and from him obtained the subjoined history:

"W. H. J., man, aged 66, married, laborer, was taken sick, three days before, with nausea and vomiting. When walking he had a cramplike pain in the midline below the umbilicus, which lasted part of the morning and then became general, but was more acute on the sides than in the epigastric region. On the next day the patient still had pains in the flanks and vomited mucus. The temperature was 102 F.; the pulse was 85; the face was flushed. At 3 p. m. there was no tenderness over the stomach, but it seemed a little more tender over the region of the appendix. That night he obtained some rest from Dover's powders. Headache and severe backache were two prominent symptoms."

On examination, I found the patient's abdomen distended with gas, and, in the region of McBurney's point, considerable pain and tenderness. On palpation I was able definitely to localize a tumor mass in the right side anterior to the kidney and extending down to the appendix region. The bowels had moved earlier in the morning from a purgative saline. The patient was prostrated and had the appearance of a man in a desperate condition.

The patient stated that he had had the usual diseases of childhood. Twenty years ago, while working as an off-bearer in a saw-mill he had been seized with a sudden pain in the abdomen, accompanied with gaseous distention. The attack lasted a week. He had had an attack of pneumonia five years ago. For the last five years or more, the patient had not been well. In the region of the appendix there had been more or less pain, uneasiness and a bound down sensation. He never had had any attacks simulating acute appendicitis. For the last two months there had been a pain in the region of the right kidney, posteriorly. It was quite severe at times and no relief was obtained by lying down. The patient complained of a sudden sharp pain in the right hip which was relieved when he assumed the recumbent position. He stated that these pains did not affect his appetite, nor was he constipated. His wife informed me that for more than a year his bowels had been too loose. The patient had not done two days' work during the past five years. He had been a moderate user of tobacco, whisky and beer for years, but was not a drug addict. The family history had no bearing on the case.

The patient was fairly well nourished, but the muscles were flabby from inaction. He was 5 feet, 7¾ inches tall and weighed 156 pounds. The skin was clear and no bodily deformities were present. The nervous, cardiovascular and renal system and the special senses, for all practical purposes, were negative. The pin test revealed a hyperemia over the region of the appendix, but not hyperesthesia. Our diagnosis was acute appendicitis. We advised immediate operation, to which the patient promptly consented. Not being willing to go to the hospital, we were compelled to operate on him at his home. While taking the anesthetic he passed great quantities of gas from the bowels.

Operation and Result.—An incision was made over McBurney's point and through the sheath of the rectus parallel to the muscle fibers. The outer margin of the muscle was freed and retracted inward and the tissues beneath it incised. A small quantity of straw colored fluid escaped from the abdomen.

Next the appendix was drawn up through the incision which showed that our diagnosis was wrong; the trouble was not in the appendix. Passing two fingers upward and backward, I encountered the tumor mass which was felt before operation. I could not get my fingers under the mass or find a line of cleavage, as can be done with an abscess in this region. For exploratory purposes, therefore, the incision was enlarged upward and I was then able to get my fingers in and beneath the tumor mass.

The cecum was attached firmly to the abdominal wall as far inward as the incision through the peritoneum. The mass was wedged between the ascending colon, parietal wall and the attached cecum below. It separated easily and gave a peculiar crepitant sensation to the examining fingers. At first I thought that I had encountered a hypernephroma; but as it was withdrawn it was observed to be a strangulated portion of the great omentum. The strangulation was certainly due to torsion, as there was simply a wide open mouth at the top of the pocket in which the strangulated portion was found. The omentum was twisted contraclockwise six times. The twist was evidently due to the peristaltic action of the ascending and perhaps also of the transverse colon. The strangulated mass was dark, and no doubt in a short time would have become gangrenous. The rest of the abdominal viscera was negative. The wound was closed in the usual way and the patient made an uneventful recovery.

COMMENT

Torsion of the omentum is comparatively rare. Nearly all the reported cases have been associated with inguinal hernia.

In this case the omentum occupied a pocket above an adherent cecum, and as a result of peristaltic action of the ascending colon, the accessory omentum became strangulated by torsion.

The use of Battle's incision should be generally employed in appendix work in order to avoid injuring a cecum attached to the anterior parietal wall.

Torsion of the omentum has never been diagnosed before operation. This shows the need of more reliable methods of diagnosis of abdominal troubles.

Sources of Milk Infection and Typhoid.—Milk supplies are, in general, exposed to typhoid infection in proportion as they are exposed to contamination with human discharges, and in proportion as these discharges are likely to contain typhoid bacilli. Other things being equal, the likelihood that typhoid bacilli may be present in some of the discharges with which a milk supply may become contaminated is proportionate to the number of persons in dangerous contact with the milk supply. We may consider as in dangerous contact not only those persons who actually handle the milk, but all whose discharges might in any way infect the supply.—W. H. Frost, M.D., *Public Health Report,* Dec. 1, 1916.

A MILK-BORNE EPIDEMIC OF TYPHOID FEVER DUE TO THE USE OF POLLUTED WATER

WITH FIVE FAILURES OF TYPHOID IMMUNIZATION

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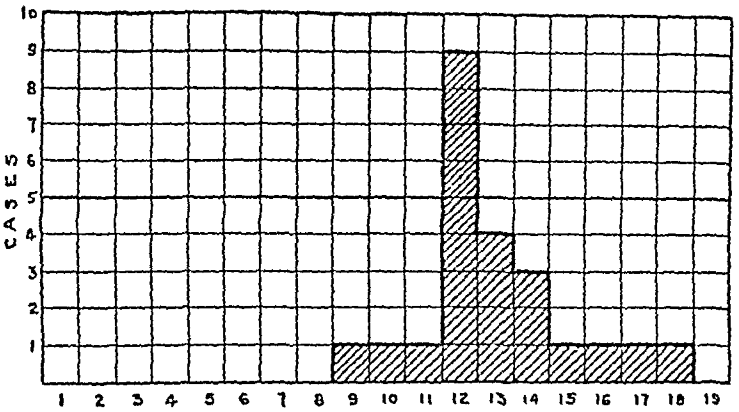
An explosive outbreak of twenty-three cases of typhoid fever directly traceable to a milk supply occurred in Colusa, Calif., in May, 1915. The interesting factors were:

1. The small number of cases, twenty-three, considering the large number of persons exposed to infection, 643.
2. That of the cases, 70 per cent. were in children, one 13 months and two 16 months of age.
3. The failure of typhoid vaccine to protect completely five persons exposed, four of whom were children, the average age being 9 years.

THE OUTBREAK

In the first case reported, symptoms were noted, May 9. The maximum number of cases occurred, May 12, and the last case, May 18. There were no deaths, and the mildness of the disease was striking in the vaccinated persons. Eighteen cases in this epidemic gave positive microscopic Widal reactions, and in the remainder agglutination was complete with motility present. These were frank clinical cases of typhoid.



Incubation period and occurrence of cases; May 1 is probable date of infection of milk supply.

Epidemiology.—The city of Colusa is supplied by two dairies, but all the typhoid patients, as stated by the health officer, Dr. C. A. Poage, and later verified, obtained their supply from one. Investigation showed that the entire milk supply of this dairy was distributed solely through a substation separated by miles from the dairy proper. The dairy itself was of a type far better than the usual rule of dairies in like rural communities. There were two milkers employed, one of whom gave a history of having had typhoid four years previous to the outbreak. He had been employed as a milker for three years in this dairy. Repeated examination of urine and feces from this man as well as the other were negative. His blood, microscopically and macroscopically, failed to agglutinate a known highly agglutinable strain of the typhoid bacillus. The water supply checked bacteriologically was also negative. Investigation of the substation acting as the sole distributor for the parent dairy revealed some interesting data. All bottles and containers were cleaned and filled there, the work being done by one man. Examination of the urine, feces and blood of this man were completely negative for typhoid. The water supply of the substation consisted of a dug well from 20 to 30 feet deep situated in a yard near a lot about 25 feet from an open privy of easy access to the public, on practically the same ground level. Bacteriologic examination showed this water to be dangerously polluted. Though all milk bottles and containers were first washed in the well water heated to a variable degree, they were subsequently rinsed in water direct from the well and in most instances filled with milk without any previous draining. Further inquiries have proved this method of washing containers to be the rule on most dairies seen, the theory being that cold water used after warm enables them to obtain clear glassware.

AGES OF PATIENTS

Age	Number of Cases
Thirteen months	1
Sixteen months	2
Six years	4
Seven years	2
Eight years	1
Nine years	2
Eleven years	1
Twelve years	4
Seventeen years	1
Eighteen years	1
Over twenty years	4

The probable date of the infection of the milk supply was on or about May 1. This opinion is based on the fact that one of the families in which cases occurred ceased to take milk from the dairy at that time.

Vaccine Failures.—Of the large number of persons exposed to infection, only seventeen had been previously vaccinated against typhoid. In five of these so inoculated within a year, the vaccine used, the Gay-Claypole sensitized sediment suspension manufactured by the California State Board of Health, failed to protect. It was of great interest to note the extreme mildness of the attack in those vaccinated. The question as to why typhoid vaccine does not always protect seems to be a matter of conjecture. When one considers that four of the five failures were in children averaging 9 years of age, one could easily from these cases question the dose splitting of vaccine immunization according to age. It is my opinion that children should receive adult doses. In the administration of the preventive Pasteur treatment for rabies in the state hygienic laboratory, it has been my invariable rule to give adult doses to children bitten, with seemingly good results.

Other reasons for failures may be that in some persons the number of doses is not sufficient to immunize, and the time limit usually set before further vaccination entirely too long.

COMMENT

The origin of the infection of the cases in this epidemic was the milk produced by a dairy and distributed through a substation, the infection occurring on the premises of the latter owing to the use of cold polluted water in rinsing utensils and glassware. No evidence was obtained which showed that the infection came from a typhoid carrier, but the evidence does not entirely rule out this possibility, as carriers are usually intermittent.

Cleansing of milk bottles with water which has not been bacteriologically examined should be condemned, and it is obvious from this epidemic that a safe milk supply can never be obtained without direct bacteriologic supervision of dairy water supplies.

Again, this epidemic points out the crying need of commercial pasteurization properly supervised and carried out. The Richmond epidemic[1] was an overwhelming argument for pasteurization as a logical safe procedure. There is no doubt that a bacterial count as a standard for the cleanliness and sale of milk is insufficient protection against such outbreaks as this. The sense of security a low count gives is fallacious when one considers the many pathogenic organisms which may be present in milk and yet not demonstrable in a bacterial count alone.

Ordinarily, a milk epidemic is explosive in its outbreak, as this was, the infection being carried to all users of a given supply at practically the same time, thus causing a relatively large number of them to develop the disease simultaneously. Usually, in epidemics of this type, the number of cases is large; but the approximate opposite occurred here. Only a small proportion of the users of the infected milk developed the disease.

The sudden concentration of the contamination of the water with typhoid, as demonstrated by the evidently infinitesimal quantities of the infected water left after rinsing, and the consequent possible escape from infection by a large number of bottles may account for the small number of cases.

Taking into consideration the report[2] of the California State Board of Health on typhoid fever in California for 1909-1914, the average annual death rate per hundred thousand from typhoid in Colusa County was 64.7, the highest average county rate in the state. The state rate as a whole for this period was 11.1. This milk-borne epidemic is the first recorded in this county, and the influence of milk as a disseminator of typhoid, as shown by this small outbreak, would not seem to affect to any appreciable extent the total typhoid incidence, yet it demonstrates fully the potential danger of milk and adds another argument to the propaganda for better supervision of milk supplies.

SPOROTRICHOSIS: REPORT OF A CASE

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Pathologist, the Walker Hospital

R. L. Sutton, who has probably seen more cases of sporotrichosis in this country than any other person, says: "There are many busy practitioners who have never even heard of sporotrichosis. For this reason, I believe that all recognized cases of the affection should be reported, during the next few years at least, in order to disseminate as widely as possible a knowledge of its characteristic symptomatology." With this idea in view, I wish to put the following case on record, the third, I believe, which has been reported from this state:

W. B., man, aged 25, florist, came under observation, Aug. 5, 1914. May 31, 1914, he punctured his left thumb with a rose-thorn. Some time afterward the thumb became sore and inflamed, and some pus was evacuated from it. About two weeks after this, soreness developed in the left axilla and he had great difficulty in raising the arm on account of the stiffness and pain. He consulted a physician at this time who considered the pain to be rheumatic. Soon after this, several hard nodules resembling boils, but only slightly painful, developed on the radial surface of the left forearm, and others continued to develop, so that when first seen there were more than twenty nodules extending from the thumb up the outer and anterior surfaces of the forearm, across the front of the bend of the elbow, and then along the inner aspect of the upper arm, thus following the course of the lymphatics from the thumb. The nodules varied in size from that of a pea to that of a large marble, they were dusky red, and tenderness was absent or slight, being most noticeable in the more recent nodules. Some were superficial and were located in the skin; others were in the subcutaneous tissue. In the region of the extensor tendons of the thumb, in the wrist, and in the region of the biceps tendon, considerable deep, diffuse induration was present. In view of the characteristic clinical picture, a tentative diagnosis of sporotrichosis was made, which was confirmed by further examination. At this time, one nodule near the middle of the upper arm presented slight fluctuation, and when it was incised, a small quantity of viscid, grayish-yellow pus was evacuated. Microscopic examination of this pus revealed no organisms of any kind, but cultures on plain agar and bouillon gave pure cultures of the sporothrix after about ten days. The cultures varied considerably, some showing mostly mycelium and others mostly spores. Subcultures from the primary cultures gave visible growth in a shorter period, in two or three days. Several nodules developed after the patient came under observation, and these were of a brighter red and were more painful than the older ones.

The sporothrix was also later obtained in pure culture from several other nodules, which softened and were incised.

The patient was given potassium iodid in 15 grain doses three times daily for three days. In the meantime there developed an acute urethritis with extension to the posterior urethra, and at his request the medicine was discontinued because he thought it increased the irritation in the urethra. He was then given hexamethylenamin, 7½ grains four times daily, and this was continued for several weeks. It is an interesting fact that the patient under this treatment made steady progress toward recovery, and in less than three weeks, recovery was complete. A number of the nodules underwent softening and spontaneous opening, followed by prompt healing, while others disappeared without softening.

REPORT OF VACCINATION EXPERIMENT AT STATE HOSPITAL FOR NERVOUS DISEASES, LITTLE ROCK, ARK.

C. W. Garrison, M.D., Little Rock, Ark.
State Health Officer

As there has been some agitation in the state as to the method of vaccination, the following experiment was carried out at the State Hospital for Nervous Diseases, Little Rock, by the courtesy of E. P. Bledsoe, M.D., superintendent:

Twenty-five persons were selected who showed no evidence of previous successful vaccination, and, Nov. 16, 1916, oral vaccination, consisting of one tablet of vaccininum daily for seven days, was administered, this being the time purported to immunize by this method of vaccination. On the eighth day these twenty-five persons, excepting the one who developed smallpox while taking vaccininum, were vaccinated by scarification or the regular method of vaccination, with the following results:

Of the twelve persons vaccinated by Dr. C. A. Arkebauer, by scarification, there were ten positive and two negative; and of the twelve vaccinated by Dr. Pat Murphy, there were ten positive and two negative, and one person developed smallpox before all vaccininum tablets had been administered.

In the foregoing experiment Dr. Scott C. Runnells, Homeopath, of Little Rock, directed the administration of vaccininum. It may be seen that twenty out of the twenty-four persons purported to have been immunized by the oral, or vaccininum, method had successful vaccination by the scarification method subsequently. Consequently, this proves conclusively the inefficacy of the former method of vaccination.

The Author of the Mendelian Law.—Gregor Mendel, peasant boy, monk and abbot of Brunn, an experimental botanist whose work in his cloister garden laid the foundation of that exact knowledge of heredity which is new being extended in many directions, was born July 22, 1822. He died in 1882.

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[1] Geiger, J. C., and Kelly, F. L.: Pasteurization of Milk Supplies as a Protection Against Typhoid Fever, The Journal A. M. A., Jan. 22, 1916, p. 263.

[2] Monthly Bulletin, California State Board of Health, April, 1915.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 913*)

AMYLOID KIDNEY

The amyloid kidney was described as a separate entity by Rokitansky seventy-five years ago. It is now considered an amyloid degeneration occurring in chronic nephritis, particularly when the nephritis results from some chronic infection. It is found in the nephritis of chronic suppuration, and it may occur in tuberculosis of the lungs, bones and intestine, in syphilis, in malignant growths, and in some blood diseases, such as leukemia. The urine may remain normal in quantity or may be diminished. It is usually pale, of a specific gravity from 1.010 to 1.020, with large quantities of albumin, and the typical waxy looking hyaline casts.

ARTERIOSCLEROTIC KIDNEYS

In this form of nephritis the fine renal vessels show the characteristic changes of sclerosis. The kidney withers[94] as contrasted with granular kidney, the latter being caused by a slow irritative process, though both kinds of kidney trouble show focal distribution. In granular (contracted) kidney there is localized arteriosclerosis entirely separate from any general arteriosclerosis, while in senile (arteriosclerotic) kidney the disease of the kidney vessels is a part of the general arteriosclerosis. Senile kidney, though insufficient for added work, physical or dietary, and often insufficient in general infections, in ether anesthesia, and in other temporary conditions, may be entirely sufficient for a long time when the patient leads a calm, uneventful life.

It must be understood that the kidneys grow old with the rest of the body; hence a senile contracted kidney is not pathologic, unless it occurs at too early an age. This type of kidney is accompanied by slight albuminuria, casts, and often by a diminution in the amount of urine.

Numerous varieties of acute, subacute and chronic parenchymatous and diffuse nephritis may develop in senile kidneys, as they are very susceptible to infection. Elderly men whose kidneys may be only slightly impaired but in whom an enlarged prostate may cause damming back of the urine may suddenly develop uremia. Unless seriously contraindicated, such an enlarged prostate should be operated on, and life may thus be prolonged, even though the kidneys are arteriosclerotic.

EDEMA

In kidney disease the water and the solid constituents of the blood are more or less increased. The blood vessels being thus overfilled, the irritants in the blood stimulating the arterioles to contraction, and the heart becoming hypertrophied, the blood pressure rises. Eventually the increased permeability of the capillary walls causes the water and salts to be exuded into the surrounding tissues. The tissues most affected by such exudates are those in which the external or surrounding pressure is the least, that is, those which are most dilatable, and those situated where the circulation is the least forceful owing to the distance from the heart, or where the return circulation is sluggish. It has recently been shown by Underhill and others[95] that in chronic nephritis the blood vessel walls may not readily pass nutriment to the tissues or absorb waste products and water from the tissues.

It should be recognized that in circulatory disturbances of the kidney vessels, either central or local, edema of the kidney substance may occur, and that after death the kidneys may be heavy with this infiltration.

Fischer's acid theory of edema has not been generally accepted; consequently, the forced feeding of salt and alkali is not indicated. A large amount of sodium bicarbonate may produce edema by causing chlorid and water retention, especially when as much as 20 gm. or more a day of sodium carbonate are given. This fact has been noted when large amounts of alkali have been employed in diabetes.[96]

Pearce[97] showed that in uranium experimental nephritis the administration of much water caused edema, and that arsenic caused edema in chromate nephritis. He concluded that three factors operated in producing edema, namely, injured kidneys, vascular insufficiency, and too much water in the blood. Hess[98] reports, from a study in the medical clinic of Vienna, that injury to the blood vessels is an important factor in dropsy.

As far back as 1902, Hatcher and Sollmann[99] found that chlorids were greatly diminished or absent in the urine in infectious diseases, and of course were entirely absent in salt starvation. The disappearance of the chlorids from the urine does not cause any great change in the other urinary constituents. They believe retention of chlorids in infection shows that the body requires more sodium chlorid than it is receiving from the diet; hence, as the patient should receive about 15 gm. a day, they suggest the addition of salt in a nearly salt-free diet, such as a milk diet.

An insufficient salt diet such as is so frequently employed during fever, causes a resorption of chlorids from the tissues into the blood. As Sollmann and others have shown that sodium sulphate injected intravenously causes a disappearance of the chlorids from the urine, cathartic salts, especially sulphates, apparently should not be given in edema or when circulation is poor. Serious consequences are frequent when such treatment is given in cardiac failure.

As previously stated, Fischer's theory of edema in nephritis has not been generally accepted, and the treatment he advises, based on his theory, may often be dangerous.[100] Some support of his treatment and some suggested limitations have been offered by Lowenburg.[101]

During health, and in fact during life, very slight changes in the reaction of tissues occur. To keep the blood alkaline, or better, "neutral," according to

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[94] Allbutt, C.: Brit. Med. Jour., April 15, 1911, p. 853.

[95] Bogert, L. J.; Underhill, F. P., and Mendel, L. B.: Studies of the Permeability of Cellular Membranes, I, The Regulation of the Blood Volume After Injections of Saline Solutions, Am. Jour. Physiol., 1916, **41**, 189; II, The Action of Saline-Colloidal Solutions upon the Regulation of Blood Volume, ibid., p. 219; III, The Influence of Alkaline-Saline Solutions upon Regulation of Blood Volume, ibid., p. 229.

[96] Levison, L. A.: The Occurrence of Edema from Large Doses of Sodium Bicarbonate, The Journal A. M. A., Jan. 23, 1915, p. 326.

[97] Pearce, R. M.: The Production of Edema, Arch. Int. Med., June, 1909, p. 422.

[98] Hess: Ztschr. f. klin. Med., 1915, **82**.

[99] Hatcher and Sollmann: Am. Jour. Physiol., Dec. 1, 1902, pp. 139-154. Sollmann: Ibid., pp. 155-174.

[100] Fischer, M. H.: The Treatment of Nephritis and Allied Conditions, The Journal A. M. A., May 31, 1913, p. 1682; Relation Between Chlorid Retention, Edema and "Acidosis," Jan. 23, 1915, p. 325.

[101] Lowenburg, H.: Efficiency of Sodium Chlorid in the Therapeutics of Bright's Diseases, The Journal A. M. A., Nov. 28, 1914, p. 1906.

Adler and Blake,[102] the bases "chiefly bicarbonate and alkaline phosphate, must equalize the acid substances at all times. The function of the bases of the blood is to transport acid, and to help to maintain the proper concentration." If more acid were introduced into the system than could be neutralized, acid intoxication would result. The stronger the acid chemically, the more readily it combines with the base. Hence in certain pathologic conditions stronger acid than carbonic acid may be produced and attach itself to all the available base, so that this is insufficient to carry carbonic acid from the tissues to the lungs. Many serious symptoms result, culminating in coma, due to acidosis. This occurs typically in diabetes when beta-oxybutyric and diacetic acids develop. As not all the ammonia in acidosis is converted into urea, some of it directly neutralizes the extra acid, and the amount of this ammonia combined with acids excreted into the urine is an index of the degree of acid intoxication.

In edema caused by circulatory insufficiency the withholding of salt may not be beneficial, while the consumption of an added amount of salt, provided the ingestion of water is reduced to a minimum, may assist in removing the edema by increasing the water requirement of the blood. While in the edema of circulatory insufficiency the blood may thus be stimulated to pick up the transudates of liquid, in nephritic edema accompanied by inability of the kidneys to excrete salt, the addition of salt to the diet increases the edema; it must therefore be withheld in order that the circulation may gradually remove the exuded liquid. If the kidneys are able to throw off salt, no harm may be done by allowing the patient to have it, or by giving him more water.

The reason for diverse findings and reports concerning the advantages of a salt-free diet in edema is probably that in many instances there was circulatory disturbance and passive congestion of the kidney in which salt not only might not be detrimental, but in conjunction with digitalis might be of great benefit in removing the edema. However, in real nephritis with edema and high pressure, salt is injurious and water should be imbibed only in small quantities.

Physiologically, we need about 2 gm. of sodium chlorid daily to keep up the sodium chlorid equilibrium of the tissues. The greater portion of this substance is eliminated by the kidneys in from twenty-four to forty-eight hours, while the remainder is excreted by the skin, and intestines, and by tears. In most cases of real nephritis the salt excretion is retarded, and it may be greatly retarded. The rate of elimination may vary so that a period of retardation may be followed by a day or two of increased rapidity of excretion as the kidneys temporarily improve. Extensive retention of sodium chlorid is usually followed by edema, which lessens or disappears if the elimination of salt is again begun.

It has been shown that the bromin ion affinity is greater than the chlorin ion affinity; hence when bromids are administered during kidney insufficiency, the bromin may be excreted at the expense of the chlorin, the chlorids being retained. If the kidneys are seriously impaired, both chlorin and bromin may be retained.

It is self-evident that although edema in nephritis may not be entirely due to the inability to eliminate salt, a salt-free diet, for a short time at least, is distinctly advisable. If a salt-free diet is too long continued, the patient may suffer either from insufficient formation of hydrochloric acid in the stomach or from the lack of sodium chlorid in the tissues. Hence, after a period of salt-free diet, a small amount of sodium chlorid should be allowed daily, perhaps as much as 2 or 3 gm. Of course in nephritic edema the drinking of water should usually be restricted, even when the urine is scanty. When this precaution is taken, there will naturally be a loss in weight. A nephritic patient should be weighed frequently. If in spite of a limited diet and a limited ingestion of water the patient does not lose weight, an internal edema with retained sodium chlorid is the probable cause. Elimination of salt from the diet will reveal whether or not the ability of the kidneys to excrete salt may be improved; it may be that they will again excrete it in sufficient quantities and for a prolonged period, even in chronic nephritis. Bread should be made without salt; saltless butter should be used, as ordinary salted butter contains about 1 per cent. of sodium chlorid; fruits contain no salt; milk contains only a trace of salt; cheese is ordinarily salted, varying in amount up to nearly 3 per cent.; eggs contain only a trace of salt.

Magnus-Levy[103] states that muscle contains the least sodium chlorid of the body tissues, namely, 0.1 per cent. Connective tissue is the richest in sodium chlorid, and contains from 0.3 to 0.4 per cent. The entire body in a healthy man contains 130 gm. of salt, and the intake with an ordinary diet is from 15 to 20 gm. a day. If a normal person eliminates salt entirely from his diet, he generally loses weight.

Protein food requires more water in its metabolism and excretion than do other foodstuffs, but less food is consumed if water is not drunk with the meals. While a salt-free diet is most efficacious in diffuse nephritis with edema, it may also be of some value in edema of cardiac insufficiency, and in cirrhosis of the liver. Sometimes a large exudate, such as a pleuritic or peritoneal exudate, may be absorbed on a salt-free diet. Occasionally edema may not occur when sodium chlorid is retained.

(To be continued)

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[102] Adler, H. M., and Blake, Gerald: The Retention of Alkali by the Kidney with Special Reference to Acidosis, Arch. Int. Med., April, 1911, p. 479.

[103] Magnus-Levy, A.: Dehydration by Dietetic Measures, The Journal A. M. A., Dec. 17, 1910, p. 2139.

Report of Harvard Cancer Commission.—The fourth annual report of the Huntington Memorial Hospital for Cancer Research and of the Laboratories of the Cancer Commission of Harvard University for 1915-1916 shows that the hospital and the commission are making the most of their present facilities. It is said, however, that in order to employ the full resources of the commission a new and separate laboratory building adjacent to the hospital, with accommodations for the departments of pathology, biophysics, biochemistry and genetics, and facilities for the outpatient department of the hospital, is sorely needed. A fund of at least $100,000 will be required for this purpose. The majority of patients referred to the hospital have inoperable or recurrent cancer and receive radium and Roentgen-ray treatment along with other palliative measures in the hopeless cases, though a larger number of cases than in previous years were given surgical operative treatment in the hospital. Patients with lymphoma, nevus, keloid, and many superficial lesions like keratosis, precursors of cancer in neglected cases, have also been treated with radium, of which the hospital now has 1 gram. A course for the training of laboratory nurses has been developed, one of the graduates being now with the Harvard Unit in France. A social service worker has been appointed and has rendered valuable assistance in the study of end-results in the patients who have been treated in the hospital.

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SATURDAY, MARCH 31, 1917

COMPENSATORY PROCESSES IN DELAYED GROWTH

The suppression of growth in the young is a phenomenon familiar to physicians. Attempts to cope with it frequently awaken a feeling of utter inability. Interference with growth may be due to a variety of causes, among which those of an inherited or congenital character usually represent the irremediable type. Not infrequently a retarded growth is merely the outcome of a temporary undernutrition brought about by disease; sometimes it represents the results of malnutrition through errors of diet chargeable to environment, poverty or human ignorance.

Experience shows that the detriment of a brief period of suspended or inadequate growth need not be permanent. With recuperation from disease or with a return to wholesome conditions of living a speedy restoration of size may follow, so that no permanent impairment of form or stature will remain. There has been some debate as to how long in the life cycle the ability of the organism to renew or complete its growth is retained. Obviously human data are not easy to secure in this field. At best they represent scattered statistical fragments of varying values. Extensive recent investigations on animals have clearly shown that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. Osborne and Mendel[1] have found that even after prolonged periods of suppression of growth, full size may subsequently be attained without apparent impairment of the individual. In suitable cases the size or age at which the inhibition of growth is effected does not alter the capacity to resume growth. Even when the suppression of growth is attempted for long periods at a small size (body weight), the restoration may be adequate when a suitable diet is furnished. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long continued retardation.

The possibility remains that, in the course of suppressions and renewals of growth, disproportionate retardations or renewals in the development of individual organs may arise; so that although the body as a whole seems to recover from disturbances of growth, and stature and weight are apparently ultimately unaffected, nevertheless upsets in the normal correlations of tissue masses might arise. Stewart[2] has, indeed, pointed out that there are variations in the relative weight of different viscera during maintenance without growth. The weight of some is said even to increase under such conditions, presumably at the expense of others. We might well expect cellular or other permanent tissue rearrangements under such conditions. A lingering effect of these changes in certain organs might come about without any evidence of it in the gross form of the body. The compensatory processes of the organism, however, are far too perfect to permit a permanent maladjustment of its component structures. The latest experimental researches of Stewart[3] at the University of Minnesota show that the marked tendency of the body as a whole to recover its weight after a period of maintenance without growth is likewise characteristic of the various organs and parts. The abnormal proportions produced by underfeeding rapidly disappear on generous refeeding, so that practically normal relations are restored in most cases within a short time. The readjustment evidently involves a modification of the growth curves of many of the various organs and parts of the body during the early refeeding periods. Thus those organs and parts which lose weight during maintenance grow again more rapidly than the body as a whole, whereas those which gain weight during suppression of growth show a tendency to lag behind until the normal balance is restored.

THE SIGNIFICANCE OF VARIABILITY IN GROWTH DURING SCHOOL YEARS

The hygiene of school life has begun to receive consideration from both educators and physicians. Increasing sums are being spent on the problems of the health of schoolchildren; and greater and better facilities for health conservation work are being demanded every year. Sound teeth, perfect vision, correction of physical deformities, adequate nutrition, improved resistance to infection and greater freedom from disease are desiderata which every fair-minded citizen must join in obtaining as a matter of ultimate public advantage.

Education is a preparation for life, and should not neglect any desirable feature of development, whether physical, moral or intellectual. A present difficulty in this work is the lack of suitable criteria of the efficiency of the methods employed. Certain improvements can be directly ascertained by medical inspection; others are as yet vouched for only by a sort of personal estimate. Growth is the most conspicuous manifestation of the period of school life. It seems likely, therefore, that whatever will contribute to the more accurate analysis or measurement of growth in its varied manifestations will contribute to the formation of the much desired impersonal judgments as to the status of our schoolchildren at any age or stage of development.

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[1] Osborne, T. B., and Mendel, L. B.: The Resumption of Growth after Long Continued Failure to Grow, Jour. Biol. Chem., 1915, **23**, 439.

[2] Stewart, C. A.: Proc. Am. Assn. Anat., December, 1915, p. 75; Anat. Rec., 1916, **10**, No. 3.

[3] Stewart, C. A.: Growth of the Body and of the Various Organs of Young Albino Rats After Inanition for Various Periods, Biol. Bull., *1916*, **31**, *16*.

Hygienically suitable or unsuitable environments doubtless leave some mark, temporary or permanent as the case may be, on the record of growth. But growth cannot be measured or evaluated with absolute mathematical precision because of the factor of variability. T. Brailsford Robertson[1] of the University of California has clearly indicated the significance of this. In any fortuitously selected group of animals or human beings, he says, the individuals comprising the group will be found to vary in greater or lesser degree from the type or average which the group collectively represents. When a large proportion of the individuals comprising the group differ from the average to a considerable degree, we say that the group or type is highly variable; when the converse holds good, that is, when few of the individuals comprising the group depart widely from the average, we consider the group or type to be but slightly variable. It is evident that if a measure of variability can be conveniently obtained, it represents a factor or group of factors which may conceivably be affected by environmental or physiologic conditions in a distinctive manner. In comparative studies of growth under varying environmental or dietetic conditions, a knowledge of the variability of the organisms studied is essential in order that we may determine the deviations from the average which may be regarded as normal, and those which on the contrary must be regarded as abnormal and attributable to the experimental conditions under which we have placed the individuals which display them.

If, then, we desire to obtain a reliable criterion of abnormality, we shall do well to select for our purpose the measurement which is normally found to be least variable, since relatively small deviations from the normal are in that case fraught with significance which does not attach to similar deviations from the normal displayed by a more variable characteristic. Robertson has lately made extensive studies of the physical dimensions and welfare of large numbers of schoolchildren of the various schools in the city and environs of Oakland, Calif. Here he has found that the rate of growth in weight of schoolchildren of both sexes increases from the seventh to the fifteenth year, and variability in weight undergoes a parallel increase during this period. There is a decided tendency for maxima of variability to coincide with maxima of yearly increment in weight. The stature of schoolchildren during this period increases at an almost uniform rate, and the variability of stature is correspondingly uniform. The variability of stature is much less than the variability of weight, from which we may infer that as a criterion of abnormality the measure of stature is more reliable than that of weight, while as a sensitive indicator of the effects of environmental, physiologic or dietetic fluctuations, provided statistical methods of investigation are employed, the measure of weight is to be preferred to that of stature.

Robertson has found that increasing unfavorability of environment results in a parallel increase of deficiency in weight and stature. It is a strikingly significant fact, also, that as the favorability of the environment decreases, the proportion of medical care extended to the children, as indicated by the percentage of removed adenoids, also decreases; while the degree of medical neglect, as indicated by the percentage of unremoved infected adenoids, undergoes a parallel increase. Such studies exemplify the kind of careful statistical analysis to which some of the problems of the hygiene of school years must presently be subjected.

THE "OPEN DOOR" IN CHINA

Some days ago the newspapers of the country received a press bulletin sent out by the Bureau of Foreign and Domestic Commerce of the Department of Commerce, Washington. The bulletin was marked "Confidential — Released for Use of Morning Papers of Monday, March 19, 1917." It dealt with "American Remedies for Chinese Ailments" and was a brief introduction to "Special Consular Report, No. 76," issued by the bureau and entitled "Proprietary Medicine and Ointment Trade in China." In due time the special report was received and from it we quote somewhat freely:

> "Hygiene is practically unknown among the Chinese. . . ."
>
> "No country offers a richer field for the proprietary medicine trade than China."
>
> ". . . the selling of patent medicines has proved to be successful *largely, if not wholly, to the extent that well-planned advertising creates a demand,* and thus ultimately gives the manufacturer *maximum returns* with a *minimum expenditure. . . .*"
>
> "It is positively asserted by one American who reaped a rich harvest of orders after a good publicity-campaign that with sufficient advertising *anything at all within reason* can in time be profitably introduced to the Chinese trade."

Bear in mind that the quotations just given, certain parts of which we have emphasized by italics, are not taken from a circular sent out by the "patent medicine" interests, nor from an advertising agency trying to drum up trade for the Orient, but are from a report issued by the Department of Commerce of the United States. Says the report:

> "Through judicious and persistent advertising the natives are gradually being educated to the necessity of paying some

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[1] Robertson, T. B.: Studies on the Growth of Man, IV, The Variability of the Weight and Stature of School Children and Its Relationship to Their Physical Welfare, Am. Jour. Physiol., 1916, **41**, 547.

intelligent attention to their various ailments and are responding remarkably well."

Less euphemistically this might be expressed thus: If you advertise persistently enough and skilfully enough you can get the Chinese to swill your tonics and swallow your pills with as much readiness as do the Occidentals. Again:

> "There is room for all kinds of proprietary-medicine preparations in China, provided, of course, that such medicines are reasonably efficacious for the ills for which they are recommended."

Not too efficacious, of course, but "reasonably efficacious"! "Reasonably" is good! But American "patent medicine" manufacturers are warned that if they expect to get a foothold in China their nostrums must be, at least, "reasonably efficacious" for "the Chinese are perhaps more critical than any other nation, and are very sensitive about spending money without adequate returns." As the proportion of Chinese who recover from passing indispositions with treatment, without treatment or in spite of treatment, is probably as high as that obtaining among other nationalities, they can, doubtless, be fooled into believing that they have received "adequate return" from their self-drugging as easily as the rest of mankind is fooled.

We learn further from this interesting report that while the Chinese prefer medicine in tablet or pill form, nevertheless "several liquid medicines have met with success, notably palatable tonics with medicinal properties." Is China dry, too? "Palatable tonics with medicinal properties" — how familiar!

"It is highly important to avoid too much exaggeration, as the average Chinese is phlegmatic and sensible," says the report. Here the American "patent medicine" maker may possibly "fall down." It is as difficult to conceive "patent medicine" advertising that avoids exaggeration as it is to visualize the hole in a doughnut that has been eaten. But it is not "exaggeration" but "too much exaggeration" that is to be avoided. The ubiquitous "patent medicine" almanac and the indispensable testimonial are both recommended by the Department of Commerce to those nostrum exploiters that wish to gain a foothold for their products in China. "Testimonial advertising has met with success in China," says the bulletin, "and many spontaneous letters of gratitude are received daily by leading 'patent medicine' firms" in that country. The almanac suggested for Chinese trade in this Special Consular Report should be in "the form of a scroll." Such almanacs are very popular, "since the Chinese are eager to have a pictorial calendar in their homes all year round for the purpose of discovering 'lucky' or 'unlucky' days for weddings, funerals, and other affairs." As such almanacs are "usually displayed in a conspicuous place in the home all through the year" there is "no doubt that this form of advertising is one of the best that can be devised." The "favorite design" for such almanacs, we learn, "used to be an illustration of an old classic tale." But the Orientals are not as peculiar as Bret Harte would have us believe, for "now the Chinese prefer a girl picture"!

Physicians who visited the Panama-Pacific International Exposition in San Francisco may remember the exhibit of the Propaganda department of The Journal on the nostrum evil and quackery. When the exposition closed this exhibit was turned over to the Health Division of the Lecture Department of the Young Men's Christian Association in China, which has used it to splendid effect in China. The Journal received a letter from one of the secretaries of the Lecture Department in Shanghai thanking the American Medical Association for its gift, in which the writer said:

> "It [the exhibit] will find a marvelous opportunity in the needy country of China to initiate the campaign such as you have so effectively begun in America against the frauds and quacks that are preying on our people. In China, where superstition on medical subjects is rank, where ignorance is prevalent among a large class of the population, where there is but a minute beginning toward modern Western medical practice, we find a soil prepared for the quack medicine vendors, such as is probably not surpassed in any other part of the world, and already patent medicine advertisements have become among the most prominent in all parts of the country."

This was written over a year ago, but it is almost prophetic in forecasting the extension of the nostrum evil so enthusiastically fathered by Special Consular Report No. 76, issued by the Department of Commerce of the United States government.

THE BEHAVIOR OF THREE ORGANIC ACIDS IN THE BODY

The three organic acids, oxalic, tartaric and citric, or certain of their salts, in varying, though small quantities, all form a part of commonly used foods. Oxalic acid is properly looked on as a poison. No suspicion of harmfulness has attached to the salts of tartaric acid beyond what might be charged to the use of cream of tartar or Rochelle salt. Although magnesium citrate acts as a mild laxative, sodium citrate is dispensed as the more palatable equivalent of sodium bicarbonate, and citric acid prepared from the juice of limes or lemons is appreciated as a harmless refrigerant and substitute for lemon juice. Perhaps the comparative reputations which they bear for toxicity or innocuousness, respectively, are after all not inherent in these individual somewhat related organic acids, but are rather the expression of varying dosage. Very dilute hydrochloric acid is readily tolerated in large volumes as a component of the gastric contents, whereas a few drops of the concentrated acid are intensely irritating and harmful. A small amount of common salt as a constituent of most meals is repeatedly being ingested without concern; but a concentrated solution of sodium chlorid brine may promptly exhibit aperient effects.

Oxalic, tartaric and citric acids have certain chemical properties in common. Each precipitates calcium; and as this seems to be an important aspect of the toxicity of oxalates, it might be expected that a common chemical mechanism would produce comparable results. Yet this is not always a safe guide. Methyl and ethyl alcohols, which are similar in many of their properties, behave differently in the organism, the ethyl alcohol being far more easily oxidized within the body and thus excluded from the possibilities of doing further harm. Hence it has a lesser toxicity in contrast with the same doses of the less readily destroyed methyl alcohol.

The poisonous character of even small doses of oxalates is so well known that it requires little further comment here. Many regard the question whether oxalic acid is oxidized at all in the body as still open. The increment of oxalic acid in the urine following increased intake even in the small amounts that occur in some of the green vegetables brings evidence of its resistance to oxidation. The tartaric acids likewise appear to be less readily destroyed in the body than many other organic compounds. Little attention was directed to any harmful results produced by them until Underhill's discovery of the tubular nephritis following administration of tartrates.[1] The degree of renal injury can be modified by the reaction of the diet; and the dosage of such a tartaric acid compound as Rochelle salt required to elicit detectable signs of kidney lesions is not small. It has been argued that the latter fact excludes all possibility of harm so far as tartrates form a part of ordinary diets and even of ordinary therapeutic doses of them. This is at least debatable in the absence of more extensive observations. In any event, tartrates are no longer to be looked on as absolutely inert from a physiologic point of view. Perhaps the old cream of tartar therapy will at length be abandoned or subjected to more rigorous critique in respect to latent dangers.

Despite these uncertainties about the tartrates, citric acid and sodium citrate have borne a satisfactory reputation for inertness in the sense of freedom from harmful manifestations in the body. Citric acid is reputed to be burned up completely in the organism. Janney[2] has administered 15 gm. of sodium citrate to man without detecting any in the urine; and after doses of 25 gm., only insignificant traces appeared. He states that 30 gm. of citric acid have been administered without apparent harm along with 60 gm. of sodium bicarbonate. Sodium citrate is widely used at present in human therapy as a substitute for the less palatable bicarbonate.

These features of citric acid have now been substantiated in a general way by the detailed experiments of Salant and Wise[3] of the Bureau of Chemistry in Washington. They show, however, that even citrates may manifest toxicity, provided the dose is large. But the action of citrate is acute. As was expected, it is evident that citrates are decomposed or destroyed in the body more readily than either tartrates or oxalates. When citrate was given intravenously, subcutaneously or by mouth, no after-effects were observed. Neither sugar nor albumin was present in the urine, which was examined for several days after toxic doses of citrate were administered. Symptoms developed rapidly, especially after large doses, and ended in recovery or death within a few hours.

The behavior of citrate and tartrate to increasing harmful doses also shows that their action is not the same. A partial tolerance can be developed for tartrates. According to Salant and Wise, the greater toxicity of the tartrate may be accounted for by the rate of oxidation of the two salts, citrate probably being more readily destroyed in the body than tartrate. The action of these salts in this respect is similar to that of ethyl and methyl alcohol. It has been shown that the acute toxic dose of methyl alcohol is larger than that of ethyl alcohol, the oxidation of the former being slower and incomplete. According to Pohl, methyl alcohol is oxidized to formic acid and formaldehyd, which are more poisonous than the original substance. Quoting the Washington investigators, perhaps tartrate undergoes a similar transformation in the body, the products of decomposition being more toxic than the salt from which they are derived.

It may seem uncanny to some persons to associate the acids of foods like the grape and lemon in common daily use with drugs and poisons. There is, however, nothing incongruous in this. We are learning to apply quantitative measures to benefit and harm. The organism can manage limited amounts of foods and certain nonfoods without detriment and usually with advantage. It is possible to overstep physiologic limits of intake of even the most readily assimilable nutrients, such as sugar or protein. The organism then excretes the unused products, and perchance suffers. There are limits of tolerance for simple foods as well as for organic acids. The differences are essentially quantitative, and we must learn the measure of what the human body can either use or endure.

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[1] Underhill, F. P.: The Influence of Sodium Tartrate upon the Elimination of Certain Urinary Constituents During Phlorhizin Diabetes, Jour. Biol. Chem., 1912, **12**, 115. Underhill, F. P.; Wells, H. G., and Goldschmidt, S.: Tartrate Nephritis, with Especial Reference to Some of the Conditions under Which it May Be Produced, Jour. Exper. Med., 1913, **18**, 322; A Study of Renal Secretion During Tartrate Nephritis, ibid., p. 347.

[2] Janney, N. W.: Die Ammoniakausscheidung im menschlichen Harne bei Zufuhr von Harnstoff und Natron, Ztschr. f. physiol. Chem., 1912, **76**, 99.

[3] Salant, W., and Wise, L. E.: The Action of Sodium Citrate and Its Decomposition in the Body, Jour. Biol. Chem., 1916, **28**, 27.

The Estimation of a Scholar.—The first thing naturally when one enters a scholar's study or library, is to look at his books. One gets a notion very speedily of his tastes and the range of his pursuits by a glance round his book shelves.—O. W. Holmes, The Poet at the Breakfast Table.

Current Comment

THE SUPPLY OF SALVARSAN

Three weeks ago we called attention[1] to an impending shortage of salvarsan. At that time there was evidence that many physicians were unable to obtain the product. Mr. Herman A. Metz wrote to The Journal stating that his firm had a supply of salvarsan and neosalvarsan ample for normal requirements for several months. He said, further, "By the time our supply of the foreign product is exhausted I will be ready to deliver salvarsan and neosalvarsan made in this country according to Ehrlich's method and patents." More recently it was announced that arrangements had been made with Dr. Jay Frank Schamberg of the Dermatologic Research Laboratories of Philadelphia to supply hospitals and dispensaries, through Mr. Metz, with arsenobenzol "at the rate of $2.50 and $2.20 per ampule for the 0.6 and 0.4 gm. sizes, respectively," salvarsan and neosalvarsan to be supplied to physicians presumably at the higher cost. No doubt the charge that salvarsan and neosalvarsan have been bought and hoarded for speculative purposes, even by certain physicians, is well founded. The salvarsan manufacturers, of course, are justified in guarding against this; but in doing so they should not carry the matter so far as to prevent any physician from obtaining the legitimate supply he needs. The Journal will be glad to be kept informed as to whether or not physicians are receiving the product in sufficient quantities to supply actual requirements. Meanwhile, we can but repeat that it is an unfortunate condition that permits one individual or firm to have such absolute control of an important medicament.

THE FALLACY OF INTERNAL VACCINATION AGAINST SMALLPOX

As the brief report by Garrison[2] on internal vaccination shows, there are, strange as it may be, some persons who believe that the taking of vaccininum or vaccine matter into the stomach will protect against smallpox. The result of the experiment reported by Garrison proved the utter failure of this method — of twenty-five persons given vaccininum by mouth, twenty were subsequently proved to be unprotected, as they were vaccinated successfully by the ordinary or scarification method. This was a foregone conclusion because medical science and experience know of no other successful and practical way of inducing the changes in the body which result in protection against infection, than by introducing the vaccine material directly into the tissues or the blood. This is true of all forms of protective inoculation—inoculation against typhoid, against cholera, against plague, etc., as well as against smallpox. In no laboratory experience and in no army or navy anywhere in the world is the so-called internal vaccination or introduction of the material into the stomach practiced. The farmer does not protect his hogs against hog cholera by letting them eat a somewhat modified hog cholera virus. The simple reason for this universal practice of introducing the vaccine material directly into the tissues is that when introduced into the stomach in health, the material is broken up and digested and deprived of its specific properties before it is absorbed. Ignorance and prejudice die hard.

BASE HOSPITALS FOR THE ARMY

In the news columns is an account of the progress which has been made in the organization of base hospitals under the direction of the American Red Cross. Several points are worthy of mention in connection with this movement. The first is that for over a year the details of this movement have been going on quietly and without excitement or hysteria. When it is considered that thirty-four hospitals have been organized and twenty-three of them completely equipped, that this involves the selecting, enrolling and training of over 800 physicians and surgeons and the selecting of a total personnel of nearly 7,000 persons, it will be realized that the medical profession has for some time been doing its share in the national preparedness movement. The function of these base hospitals should be clearly understood. They are not intended for operation in the cities in which they are organized, but are mobile units which can be sent on short notice to any desired location. They are not intended for operation in the field in close connection with troops or near the firing line, but are designed to serve as base hospitals receiving the wounded from the field hospitals, as do the base hospitals in Europe. Probably fifty such units capable of caring for an aggregate of 25,000 sick and wounded soldiers can be completed with little difficulty. With such an equipment, in addition to the regular medical and surgical service in the army and navy and the various ambulance corps which are being organized, it is safe to say that the United States is today better prepared to care for the sick and wounded in any possible war than it ever has been before in its history.

Coal Mine Fatalities in 1916.—According to a compilation by Albert H. Fay of the Bureau of Mines, during 1916 there were about 2 per cent. less fatalities in and about the coal mines of the United States than in 1915. This reduction occurred although the amount of coal mined increased in that period about 12 per cent. The number of fatalities reported during the year was 2,225 as compared with 2,269 for 1915. The actual number of men employed during the year is not known, but on the basis of the figures for 1915 the fatality rate per thousand men employed was 3.03 in 1916 as compared with 3.09 in 1915. The number of mine disasters in 1916 was eleven, with an average fatality for each of five, the same as in the years 1915 and 1914. The number of killed was 154 in 1916 as compared with 262 in 1915, 316 in 1914 and 464 in 1913. The decrease in fatalities, though not large, is the result of agencies and measures employed to reduce accidents, among which may be mentioned the general use of safety lamps in doubtful mines, the introduction of permissible explosives, humidifying dusty mines, first aid and rescue training, which results in saving lives, the enactment of accident compensation laws, and, as the bulletin says, the spirit of cooperation on the part of all concerned.

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[1] Another Shortage of Salvarsan, The Journal, March 10, 1917, p. 785.

[2] Garrison, C. W.: Report of Vaccination Experiment at State Hospital for Nervous Diseases, Little Rock, Ark., The Journal, this issue, p. 979.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

Personal.—Dr. Fosdick Jones, Denver, has been called for duty with the American Ambulance, Neuilly, France.——Dr. George B. Packard, Denver, has been elected president; Dr. Melville Black, vice president, and Dr. Thomas E. Carmody, secretary-treasurer of the Denver Children's Hospital, which was recently opened with accommodations for 100 patients.

FLORIDA

Hospital Notes.—The construction of the Flagler Hospital, Jacksonville, will be commenced at an early date. The single building plan has been adopted as more adaptable to the needs of the city than the unit system. The initial expense incurred will be at least $125,000.——Tampa physicians are planning a seventy-room hospital to be known as the William Pitt Lawrence Hospital.

State Board of Health Schools Centralized.—Hon. F. J. Fernside, Palatka, president of the state board of health, has recommended to the governor the creation of a state bureau of charities and correction to have charge of indigent crippled children, reform schools for the deaf, dumb and blind, state hospitals for the insane and possibly convicts. He also recommends the amendment of the present school inspection law giving the state board of health full supervision over this work and permitting the appointment of inspectors without the restrictions which the present law contains.

ILLINOIS

Public Health and Welfare.—The Illinois Public Health and Welfare Association, made up of the governmental and extra-governmental health agencies of the state, will hold its first annual meeting at Springfield, April 12 and 13. The program embraces public health and medicosocial work, and the meeting will serve as a combined conference of health workers and school for health officers. Dr. G. T. Palmer, Springfield, is president, and Mr. Paul Hansen, Springfield, is secretary.

Chicago

Fraternity House Quarantined.—The Delta Tau Delta Fraternity House at the University of Chicago is the third fraternity house of this institution to be quarantined on account of scarlet fever.

Diphtheria.—The health department of Chicago reports that diphtheria is steadily increasing. During the first twenty-one days of March there were 720 cases with fifty-two deaths, and during the week ending March 23, there were 259 cases, or nearly double the number reported during the similar week of 1916.

Infantile Paralysis.—Two mass meetings under the direction of the Association for the Prevention of Infantile Paralysis were held at the Cort Theater, March 23 and March 30. These meetings were in connection with the city-wide movement to enlist the aid of Chicago women against infantile paralysis.

Banquet and Presentation.—In the celebration of the tenth anniversary of his directorship of mechanical physiology at the University of Chicago, fifty pupils of Prof. Anton Julius Carlson who took higher degrees under him presented him with a Sigma Xi key jewelled with diamonds at a banquet given in his honor at the Windermere Hotel, March 24.

MARYLAND

General Hospital Fund.—The first two days of the campaign for the Maryland General Hospital fund netted $43,427.53 toward the $150,000 which is required for the hospital.

Meetings.—The Thirteenth National Conference on Child Labor under the auspices of the National Child Labor Committee was held at McCoy Hall, Baltimore, March 23 to 25.——A special meeting of the Baltimore City Medical Society was held at the Faculty Building, March 23, when an address on "Universal Compulsory Military Training and Service" was made by Hon. Sidney Ballou, former judge of the supreme court of Hawaii. Motion pictures on "The Army and Navy" were shown.

Doctors for Milk Bill.—The milk ordinance, requiring pasteurization and bottling, which is pending in the city council, was endorsed by Dr. J. H. Mason Knox, president of the Babies' Milk Fund Association; Dr. William T. Howard, Jr., assistant commissioner of health, and Marion B. Hopkins, city chemist, at a recent hearing held before a committee of the city council. At present forty-three pasteurized dairies sell 65 per cent. of the milk used in the city; the remainder being sold loose by small dealers.

MASSACHUSETTS

Cutter Lecture.—The Cutter Lecture on preventive medicine and hygiene will be delivered at the Harvard Medical School, April 3, at 8:15 p. m., by Dr. Ludvig Hektoen, director of the Memorial Institute for Infectious Diseases, Chicago, and will be on "A Discussion of Poliomyelitis in the Light of Recent Observations."

Research Fellowship and Food Poisonings. — Several research fellowships in the Department of Preventive Medicine and Hygiene at Harvard are available for the scientific investigation of food poisoning. The work may at the same time be credited toward the Doctor of Public Health degree. Candidates should apply to Dr. Milton J. Rosenau, Harvard Medical School, Boston.

Framingham Citizens Cooperate.—The citizens of Framingham are cooperating with the community health station, established at Framingham. An exclusion committee has been appointed to protect Framingham from any unusual increase in new families from outside, who having sick members may think it advantageous to move to the city in view of the intensive health work being done there.

Personal.—Dr. William E. Deeks has been appointed a lecturer on tropical medicine in Harvard University.——Dr. Henry P. Walcott, Boston, has been reappointed a member of the Metropolitan Water and Sewerage Board.——Dr. Thomas B. Smith, Lowell, has been appointed medical examiner of the Fifth Middlesex District, succeeding Dr. Joe V. Meigs, deceased.——Dr. Timothy Leary, Boston, has been reappointed medical examiner and Dr. William H. Watters, Boston, associate medical examiner for Suffolk County.

Harvard Medical Lectures.—The free public lectures given under the auspices of the Faculty of Medicine of Harvard University, at the Medical School, Longwood Avenue, Boston, at 4 o'clock on Sunday afternoons during April will be as follows:

April 1: "Fleas and Other Insect Parasites in Their Relation to Public Health," Dr. C. T. Brues.

April 8: "Accident and Injury; First Aid" (with demonstration of simple methods and materials), Dr. J. Bapst Blake.

April 15: "Urinary Troubles in Elderly Men" (to men only), Dr. Paul Thorndike.

April 22: "Some Facts and Fancies About Heart Disease," Dr. W. H. Robey.

NEW YORK

Antidrug Bill.—The Whitney antinarcotic bill was endorsed by representatives of the New York State and New York County Medical societies and of the Medical Economic League at a hearing, March 22. The bill provides for a free supply of drugs for addicts and for the registration of addicts. Some objection was made to the triplicate order blank system of checking narcotic drug distribution. This part of the bill is under consideration with a view to evolving some plan which will not work undue hardship on practicing druggists.

Prevention of Disease.—The course of public lectures on "Public Health and Preventive Medicine" which is being given under the auspices of the Albany Medical College, at the State Educational Building, Albany, Wednesday afternoons at 5 o'clock will be as follows during April:

April 4: School Inspection, Dr. William A. Howe, State Medical Inspector of Schools.

April 11: Anaphylaxis Against Bacterial Proteins, Dr. Hans Zinsser, Professor of Bacteriology, College of Physicians and Surgeons, Columbia University.

April 18: The Disinfection of Water, Mr. G. E. Willcomb, Chemist, Bureau of Water, Albany.

April 25: Subject to be announced, Hon. Alden Chester, Justice of the Supreme Court.

Physician Secures Reinstatement.—The eight year fight waged by Dr. W. B. Reid, Rome, to secure reinstatement in the Oneida County Medical Society is said to have been ended, March 14, by the handing down of a decision by the Appellate Division, Third Department, affirming the findings of

Justice William Ross in favor of Dr. Reid. The Oneida County Medical Society, in 1909, charged Dr. Reid with unethical conduct in advertising and exploiting in the public press a surgical operation which he had performed. The board of censors, after an investigation, presented an adverse report and Dr. Reid was expelled. He appealed to the state medical society, which reversed the ruling of the county society. Dr. Reid was reinstated, May 25, 1912, but charges were again preferred against him five days later. Dr. Reid then secured a temporary injunction; this was dismissed and the dismissal was affirmed by the Appellate Division on the ground of premature action. July 14, 1914, he was again expelled, without, as he claimed, any new charges having been brought. He again appealed to the state society, which at its annual meeting in April, 1915, referred the matter to the board of censors, which dismissed the appeal. Dr. Reid then carried the fight against this expulsion to the courts and Justice Ross decided in his favor, whereupon the Oneida County Medical Society carried the case to the Appellate Division.

New York City

Personal.—Dr. Benjamin F. Knause has been appointed full time borough chief for Brooklyn by the department of health.——Dr. S. Dana Hubbard has been assigned to the full time position of borough chief of the Bronx.

Harvey Society Lecture.—The last of the Harvey Society Lectures will be given at the New York Academy of Medicine, April 7, when Prof. William H. Howell of Johns Hopkins University will speak on "The Coagulation of the Blood."

Annual Meeting of Beth Israel Hospital Association.—The new Beth Israel Hospital, to be erected at Livingston Place and East Seventeenth Street, will include departments for the relief and prevention of heart disease, and for the after-care of infantile paralysis victims. There will be an enlarged maternity ward and improved pathologic and bacteriologic laboratories. A fund has been established by Mrs. Isaac I. Rice to send the needy sick to the country until they have recovered. Treatment was given 93,237 patients during the past year, nearly all free of charge. Nearly 2,000 patients were refused because of lack of room.

NORTH CAROLINA

State Society Meeting.—The Medical Society of the State of North Carolina will hold its annual meeting in Asheville, April 17 to 19, with headquarters at the Battery Park Hotel. Dr. Charles J. O. Laughinghouse, Greenville, is president of the society.

OHIO

Base Hospital at Toledo.—The Lucas County Academy of Medicine has passed favorably on the establishment of a base hospital in Toledo. The trustees of the Commerce Club of Toledo have pledged $30,000 for the equipment of this hospital.

Specific Disease Clinic.—Seven clinics for the diagnosis of specific disease are to be operated by Cleveland in connection with the city dispensaries. The patients will be given advice regarding the treatment of their particular ailment and will be referred to physicians. Those who are unable to pay will be given treatment at one of the free dispensaries.

State Medical Association.—The Ohio State Medical Association will hold its annual meeting in Springfield, May 14 to 16, under the presidency of Dr. Harmon B. Gibbon, Tiffin. Dr. Montgomery V. Patton is chairman of the committee of arrangements. During the meeting, a mass meeting will be held in the interests of public health, at which Dr. William Colby Rucker, assistant surgeon-general, U. S. P. H. S., will deliver the principal address.

Personal.—Dr. Walter A. Haldy, Cleveland, has returned after three months' work with the German Red Cross.——Dr. John E. Monger, Greenville, has succeeded Dr. Norton W. Bland as registrar of the State Bureau of Vital Statistics, Columbus.——The summer home at Snyderville of Dr. Emory F. Davis, Springfield, was destroyed by fire, March 4.——Dr. Harry L. Rockwood, superintendent of the Warrensville Sanatorium, has been appointed chief of the Bureau of Tuberculosis, Division of Health of Cleveland and medical director of the Warrensville Sanatorium.——Dr. Carl Mulky, Knoxville, Iowa, has been appointed assistant superintendent of the Warrensville Sanatorium.

Cincinnati

Cincinnati Physicians in England.—Drs. James S. Brummett, Robert Carothers and Benjamin H. Lamb are all on duty at British war hospitals in the north of England.

Laboratory Dedicated.—The clinical laboratory, donated to the Cincinnati General Hospital by Charles D. Boldt, was dedicated, March 7, Dr. Christian B. Holmes accepting it on behalf of the city. The medical staff of the hospital gave a dinner to Mr. Boldt.

Hospital Staff Reorganized.—The attending staff of the Good Samaritan Hospital has been entirely reorganized. Several of the members have been dropped and eight new members have been appointed. The officers of the staff are Dr. Charles L. Bonifield, *president*; Dr. Robert Carothers, vice president, and Dr. Clement C. Fihe, secretary.

PENNSYLVANIA

Scranton Schools Quarantined.—On account of the indifference said to have been displayed by local health authorities, Health Commissioner Samuel G. Dixon has closed the schools of Scranton.

Physician Wins Suit.—In the suit brought by Dr. Arthur D. Cowdrick, Clearfield, against the New York Central System, in which he claimed damages on account of being delayed at a railroad crossing by a freight train for from forty-five to fifty minutes, as the result of which rheumatism developed, and which was decided in his favor in the county court, the decision has been upheld by the supreme court.

Philadelphia

Personal.—Dr. Charles S. Hirsch has been elected urologist to the Jewish Hospital.——Dr. George A. Brown has been elected to succeed Dr. John T. Powers, resigned, as resident physician of Girard College.

Newbold Lecture.—Dr. Arthur T. McCormack, Bowling Green, secretary of the Kentucky State Board of Health and state sanitary inspector, delivered the first Mary Scott Newbold lecture in the College of Physicians, March 29, on "The Threat of National Inefficiency from Ill Health."

Changes in State Militia.—Recent changes in the state militia include Dr. Harvey M. Righter, commissioned lieutenant and passed assistant surgeon in the naval militia, and Dr. William M. Sylvis, first lieutenant, M. C., N. G. Pa. The resignations of Lieuts. William W. Van Dolsen and Charles B. Kendall, M. C., have been accepted. Major Frederick O. Waage, M. C., has been relieved from duty with the First Infantry and assigned to duty at headquarters division.

Health Course for Women.—The public lecture course for women on "Health Problems of Every Day Life," which commenced, January 31, will include the following lectures during April:

April 4: "The Care of the Teeth," Alice Norton, D.D.S., Chief of Dental Clinic.

April 11: "Health of School Children," Ellen Culver Potter, M.D., Clinical Professor of Gynecology; Medical Inspector of Public-Schools.

April 18: "Conditions and Care in Old Age," Arthur A. Stevens, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine.

Woman's Court Opened.—The first women's court in the United States was opened, March 24, at Twelfth and Wood streets. The entire first floor of the building is devoted to the court room, where the women will be tried and where their cases will be studied by social workers and physicians for mental and physical defects. A medical clinic and a mental clinic have been provided under the direction of Dr. Frances C. Van Gasken of the Women's Medical College, and opportunity will be given to women physicians to work in these clinics.

CANADA

Report of Provincial Health Board.—The Manitoba Board of Health in its annual report suggests the division of Manitoba into health districts, each in charge of a trained whole time medical officer; that a voluntary association of the health officers of the province be organized; that the remuneration of the health officer be based on the population of the district under his control, and that health returns and vital statistics receive better attention. Of 5,000 children examined in the public schools, 1,260 were found to require medical or dental attention.

Personal.—Dr. Charles White, Woodstock, Ont., who has been medical director of the Tuberculosis League Hospital, Pittsburgh, has been appointed director of the voluntary relief work of the health service of the French War Department by the Boston Committee for French Work.——Dr. Adam H. Wright, Toronto, has been reappointed chairman of the Ontario Board of Health for 1917. The other members of the board are: Drs. A. A. Weageant, Ottawa; Thomas E. Kaiser, Oshawa; James R. Roberts, Hamilton; William H. Howie, Sudbury, and Henry R. Casgrain, Windsor. Lieutenant-Colonel Casgrain is overseas.——Dr. Armstrong, Kingston, Ont., has been appointed house surgeon of the Regina (Sask.) General Hospital in succession to Dr. de Martini.——Gen. Guy Carleton Jones, C. M. G., has returned to Ottawa. His appointment as inspector-general of the Canadian Medical Services in Canada, England and France, has been gazetted. ——Col. Herbert A. Bruce, Toronto, has landed in England. ——Capt. Adam F. Menzies, C. A. M. C., gold medallist of Manitoba Medical College, was severely wounded last December. He was a house surgeon in the Winnipeg General Hospital when he went overseas a year ago. Recently he was awarded the Military Cross for conspicuous gallantry and devotion to duty.——Dr. John L. Chabot, M. P., Ottawa, has been promoted to lieutenant-colonel.——Capt. E. C. Wilford, C. A. M. C., returned to Canada a short time ago from Tseliutsing, China, where he has been for the past eight years as a medical missionary.——Lieut.-Col. William M. Hart, C. A. M. C., Regina, Sask., was a prisoner in Germany for several months. He is now attached to the Granville Special Canadian Hospital, Ramsgate, England. Major Robert Wilson, C. A. M. C., is also attached to that hospital.——Captain Scrimgeour, V. C., C. A. M. C., Montreal, is now at the headquarters of the Canadian Medical Services, London, England. He is now examining officer for the medical board.——Lieut. Francis J. Ellis, C. A. M. C., is medical officer at the 77th Battery Depot at Regina, Sask.——Capt. Fred R. Nicolle, Chatham, Ont., has returned home on sick leave. He contracted trench fever at the front and was in a hospital in England for some months.——Capt. Aubrey H. Davies, R. A. M. C., Vancouver, B. C., formerly in practice in Delhi, Ont., is surgeon on the hospital ship *Guilford Castle* plying between East African ports and Capetown.——Dr. Fred Adams, epidemiologist of the Toronto Board of Health, has left for overseas service.——Capt. James H. Hamilton, C. A. M. C., Revelstoke, B. C., medical officer of a Kootenay Battalion, after passing through the battles of the Somme, was injured while in billet and has been invalided to Canada.——Major David B. Bentley, C. A. M. C., Sarnir, Ont., is reported ill in England.——Dr. Walter L. Barlow, Frederick A. L. Lockhart, Frank S. Patch, A. R. Pennoyer, and Edmond M. von Eberts, Montreal, are members of a committee of management of the Montreal General Hospital, which will establish a fund for the training of young medical men to be known as the "R. P. Campbell Memorial Fund."——Dr. James D. Curtis, St. Thomas, Ont., has been appointed to a position on the surgical staff of the Workmen's Compensation Commission of Ontario. Dr. Curtis was chief surgeon for the Michigan Central Railway in Canada, and has recently returned from England, where he served a year with the Royal Army Medical Corps.

GENERAL

Pathologists and Bacteriologists to Meet.—The annual meeting of the American Association of Pathologists and Bacteriologists will be held in the New York Academy of Medicine, New York, April 6 and 7.

Dismissed the Service.—The *Army and Navy Journal* of March 17 states that after trial, P. A. Surg. Charles P. Lynch, U. S. Navy, having been found guilty of absence from station and duty, after his leave had expired, was dismissed the service.

Immunologists to Meet.—The fourth annual meeting of the American Association of Immunologists will be held, April 6 and 7, under the presidency of Dr. Richard Weil. The sessions will all be held at the New York Academy of Medicine, with the exception of that on April 6, at 11 o'clock, which will be held at the Rockefeller Institute, Sixty-Sixth Street and Avenue A.

Tuberculosis Work in France.—Dr. Hermann M. Biggs, commissioner of health of New York State, who has been investigating the tuberculosis problem along the French western front, has prepared a report which was presented to the Rockefeller Foundation, March 23. It is stated that Dr. Biggs recommends to the foundation the immediate institution of relief measures in France. It is also stated that relief measures to be effective should be started before the war ends.

The Work of the Rockefeller Board.—The Rockefeller Foundation announces that its appropriations for the year ending Dec. 21, 1916, amounted to $8,249,088. Of this amount, $2,590,000 has been for war relief; $611,557 for the work of the International Health Board, and $1,068,147 for the China Medical Board. The foundation has assisted the medical schools established under American auspices in that country and is formulating plans for the building of medical colleges of the first rank in Shanghai and Peking.

Public Health Propaganda.—Surg. J. O. Cobb, Chicago, U. S. P. H. S., has been detailed to deliver lectures on "Activities of the United States Public Health Service" before the various medical colleges in the city of Chicago.——P. A. Surg. Edward R. Marshall has been detailed to deliver similar lectures in the various medical colleges in the city of New York.——P. A. Surg. James R. Hurley has been directed to give a course in first aid to the Public Health Service Unit of the United Service Section of the American National Red Cross.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of California, for the purchase of an opthalmologic library of 486 volumes for the University of California Medical School, a donation of $1,500 from Mrs. Alexander F. Morrison.

Hanover (Ind.) College, a donation of $20,000, by Dr. Harvey W. Wiley, Washington, as a memorial to his parents, Mr. and Mrs. Preston Wiley.

Dr. Carl W. Brown, Bremen, Ohio, after the payment of about $2,000 in bequests and the erection of a monument to cost not less than $2,000, the residue of the estate, valued at $11,500, by the will of James E. Lane.

Military-Medical Lectures.—The following officers have been detailed to deliver courses of lectures at the colleges named in addition to their details on previous orders:

Maj. Harry L. Gilchrist, M. C., Western Reserve University, Cleveland.

Maj. Guy V. Rukke, M. C., University of Wisconsin, Madison.

Capt. Arthur N. Tasker, M. C., Columbia University, College of Physicians and Surgeons, and Cornell University Medical College, New York.

Capt. John R. McKnight, M. C., Indiana University, School of Medicine, Indianapolis.

Lieut. Henry F. Lincoln, M. R. C., Bowdoin Medical School, Portland, Maine.

Contagious Diseases at Naval Training Station.—Coincident with the large increase in numbers of recruits received from various recruiting stations, there have been a number of cases of contagious diseases at the Great Lakes Naval Training School. Since January 19, there have been twenty-four cases of meningitis with a mortality of 46 per cent., 124 cases of measles, a considerable number complicated by pneumonia, with nine deaths, and ninenteen cases of scarlet fever with no deaths. Prompt measures have been taken to control these infections, the most effective being the erection of a large number of tents whereby overcrowding has been obviated. The epidemics are now apparently under control, as there has been a falling off of the number of new cases for some days past.

Charity Conference.—The forty-fourth annual National Conference of Charities and Correction will be held in Pittsburgh, June 6 to 13, in nine sections, each of which will consider a special field. The division of children will be under the direction of Wilfred S. Reynolds, Chicago, and George B. Mangold, St. Louis; the division on community problems will be in charge of Robert A. Woods, Boston, and William J. Norton, Cincinnati; the division of correction will be presided over by Thomas Mott Osborn, Sing Sing, N. Y., assisted by George S. Addams, Cleveland; the division of the family in the community will be under the charge of W. Frank Persons, New York, and Mary C. Goodwillie, Baltimore; the health division will be presided over by Dr. C. E. A. Winslow, Yale University, assisted by Dr. Henry M. Bracken, Minneapolis; the public charity group will be under the chairmanship of A. L. Bowen, Springfield, and Gertrude Vaile, Denver, and the division of rural social problems and social insurance will be under the guidance of John N. Gillett, Grand Forks, N. D., Warren N. Wilson, New York; Max Senior, Cincinnati, and John B. Andrews, New York.

Red Cross Hospitals Organized.—As a part of the general program for preparedness, the American Red Cross has been organizing a series of base hospitals in the larger cities, using one of the leading hospitals in each case as a center. This movement, which was begun over a year ago, has been making steady progress. Twenty-nine base hospitals have so far been organized, twenty-two of them being completely equipped. Of these, seven are in New York, the parent hospital and director in each case being as follows, the star indicating those for which the money for equipment—$25,000—has been subscribed:

No. 1. Bellevue Hospital,* Dr. George David Stewart, 61 West Fiftieth Street.

No. 2. Presbyterian Hospital,* Dr. George E. Brewer, 16 East Sixty-Fourth Street.

No. 3. Mount Sinai Hospital,* Dr. N. E. Brill, Mount Sinai Hospital.
No. 8. New York Post Graduate Hospital,* Dr. Samual Lloyd, 12 West Fiftieth Street.
No. 9. New York Hospital,* Dr. C. L. Gibson, 72 East Fifty-Fourth Street.
No. 15. Roosevelt Hospital,* Dr. Charles H. Peck, 30 West Fiftieth Street.
No. 16. German Hospital,* Dr. Frederick Kammerer, 51 East Sixty-Sixth Street.

Four hospitals have been organized in Chicago. They are:

No. 11. St. Joseph, St. Mary and Augustana hospitals,* Dr. Albert J. Ochsner, 2106 Sedgwick Street.
No. 12. Northwestern University Medical School,* Dr. F. A. Besley, 106 South Michigan Avenue.
No. 13. Presbyterian and County hospitals,* Dr. A. D. Bevan, 122 South Michigan Avenue.
No. 14. St. Luke and Michael Reese hospitals,* Dr. L. L. McArthur, 122 South Michigan Avenue.

In Boston, three base hospitals have been organized, as follows:

No. 5. Harvard University,* Dr. Harvey Cushing, Peter Bent Brigham Hospital.
N. 6. Massachusetts General Hospital,* Dr. F. A. Washburn, Massachusetts General Hospital.
No. 7. Boston City Hospital,* Dr. J. J. Dowling, Boston City Hospital.

In Philadelphia, two hospital units have been completed to date. They are:

No. 10. Pennsylvania Hospital,* Dr. R. H. Harte, 1503 Spruce Street, Philadelphia.
No. 20. University Pennsylvania Hospital, Dr. Edward Martin, 1506 Locust Street.

In Cleveland, Detroit, Baltimore, Rochester, N. Y., St. Louis, Milwaukee, Wis., Buffalo, New Orleans, Cincinnati, Minneapolis, Pittsburgh, Kansas City, Mo., and Denver, one base hospital has been organized in each city, the hospitals and directors being:

No. 4. Lakeside Hospital,* Cleveland, Dr. George W. Crile, 1021 Prospect Avenue.
No. 17. Harper Hospital,* Detroit, Dr. Angus McLean, David Whitney Building.
No. 18. Johns Hopkins Hospital, Baltimore, Dr. Winford Smith, Johns Hopkins Hospital.
No. 19. Rochester, N. Y., Dr. John M. Swain, 457 Park Avenue.
No. 21. Washington University Medical School,* St. Louis, Dr. Fred T. Murphy, 5738 Coates Avenue.
No. 22. Milwaukee County Hospital,* Milwaukee, Wis., Dr. C. A. Evans, 809 Wells Building.
No. 23. Buffalo General Hospital,* Buffalo, Dr. Marshall Clinton, 556 Franklin Street.
No. 24. Touro Infirmary,* New Orleans, Dr. Rudolph Matas, 2255 St. Charles Avenue.
No. 25. Cincinnati General Hospital, Cincinnati, Dr. Joseph Ransohoff, 19 West Seventh Street.
No. 26. Minnesota State University, Minneapolis, Dr. Arthur A. Law, 420 Syndicate Building.
No. 27. University of Pittsburgh Medical School, Pittsburgh, Dr. R. T. Miller, Diamond Bank Building.
No. 28. Christian Hospital, Kansas City, Mo., Dr. J. F. Binnie, 1334 Rialto Building.
No. 29. Denver City and County Hospital, Denver, Dr. Henry Sewall, 1360 Vine Street.

The plan of organization followed is that outlined by Col.
Jefferson R. Kean, Director General of Military Relief of the
American Red Cross. It provides for a base hospital organ-
ized in accordance with the regulations of the Medical Depart-
ment of the U. S. Army. Each base hospital consists of 500
beds and a personnel of 196, consisting of twenty-three phy-
sicians, two dentists, two laboratory assistants and one
Roentgen-ray operator. On the medical staff are one medical
director, two administrative officers, one quartermaster and
one adjutant, nine surgeons and seven medical men, there
being an assistant surgical director, an assistant medical
director and an assistant laboratory director for each group.
The personnel also includes one chaplain, fifty nurses, twenty-
five nurses' aids, eighty male employees and fifteen civilian
employees. The $25,000 subscribed for equipment provides
beds, operating-room furniture and supplies, laboratory
equipment, instruments, dressings and everything necessary
except blankets, which are furnished by the government. These
base hospitals are entirely separate from the ambulance ser-
vice, which is organized separately. Each base hospital has
organized a woman's committee for furnishing linen, dress-
ings, hospital garments, etc. The hospitals so far organized
are mainly in cities of the East and North, the movement hav-
Wa.pparently not as yet developed fully in the South and
There are a number of other cities in which base hos-
ould be organized, such as San Francisco, Los Angeles,
Cincinn uisville, Ky., Rortland, Ore., Atlanta, Ga., and
mett, Rob Ala.
duty at Bri

Of the navy base hospitals, five have been organized, namely:

No. 1. Brooklyn,* Dr. W. B. Brinsmade, Casino Mansions, Hicks and Montagu Streets.
No. 2. Lane Hospital, San Francisco, Dr. Stanley Stillman, Leland Stanford University.
No. 3. Los Angeles, Dr. Rea Smith, Brockman Building.
No. 4. Philadelphia, Dr. A. B. S. Ashhurst, 811 Spruce Street.
No. 5. Rhode Island Hospital, Providence, Dr. George A. Matteson, 382 Brook Street.

Of these, only the No. 1 hospital at Brooklyn has so far completed its personnel and equipment. The need for navy base hospitals is not so great as for army hospitals, as the navy is not subject to as rapid expansion.

FOREIGN

Sick Prisoners of War Interned in Denmark.—The *Ugeskrift for Læger* of Copenhagen states that by the first of April the Russian, German and Austrian authorities will have sent to Denmark 2,400 prisoners of war suffering from internal diseases, disease of the cardiovascular or nervous system, kidneys or lungs. The initiative for the plan is due to a Russian Red Cross physician who wished to provide better conditions than are possible in a prisoners' camp for those with internal disease. The Russian and Teuton authorities conferred with a Danish committee appointed for the purpose, including Professors Faber and T. Madsen, and the health resorts at Hald in Jylland and at Horserød in Sjælland were selected for the purpose. It is deemed more convenient to keep them separate in this way from the populace, instead of distributing them around among hotels, etc., as is being done in Switzerland.

Deaths in the Profession Abroad.—**E. Cervera,** a leading surgeon of Madrid and chief of the Instituto Rubio since the death of its founder, aged 62.——**J. Courmont,** professor of hygiene at the University of Lyons, and author of textbooks on microbiology and general pathology, aged 52. Since the beginning of the war he has had charge of the hygiene of the whole Lyons district, and was organizer and consulting hygienist for the entire front. It is said that his overwork was responsible for the fatal cerebral hemorrhage.——**E. Rapin,** a prominent physician of Geneva, Switzerland, aged 84. He took a leading part in public health matters and has published many works on different medical topics. His last communication, 1907, was on familial angioneuroses, based on forty-two cases personally observed. It attracted considerable attention, as he included such a long list from hay-fever to localized edema among the angioneuroses.

WAR NOTES

Personal.—Dr. Kenneth Taylor, formerly of St. Paul, has been appointed director of the Robert Walton Goelet Research Laboratories which are housed in the Doyen Hospital, Paris.

Ambulance Section Leaves for Front.—Section 17 of the American Field Ambulance, composed of students of the Leland Stanford Jr. University, San Francisco, left for Paris, March 16, for the front.

Red Cross Alliance.—An alliance between the Brazilian Red
Cross and the American Red Cross has been proposed in a
letter received, March 11, by Miss Mabel Boardman from
Dr. L. DeOliveria, Botelho, founder of the Brazilian Red
Cross. Under the proposed alliance the Brazilian Red Cross,
in case of necessity, would offer its personnel and other
resources for use by the United States.

Smallpox in Germany.—In a speech made by Socialist
Deputy Hoffmann in the Reichstag, March 22, he is said to
have stated that there are 30,000 cases of smallpox in Ger-
many and that the disease is spreading rapidly. This report,
which has been repeated by newspapers in Austria, has been
denied by the German authorities, who admit that there have
been 135 cases of smallpox in Berlin alone, with eleven deaths.

Physicians' Expedition Must Return to Their Bases.—The
American Physicians' Expedition, under the direction of Dr.
Edward F. Nippert, Cincinnati, has returned to its base at
Deutsch Eylau to continue its work.——The American Physi-
cians' Unit, operating under the direction of the German-
Austrian Aid Society, Chicago, has returned to Graudenz.——
The American Unit Station at Naumberg has discontinued
its work there and has donated its equipment to the muni-
cipality.

Ambulance News.—The American Ambulance Field Service
in France has received a gift of $30,000 for the purchase of a
full section of twenty-two ambulances with the necessary
repairs, care, field kitchens, etc., as a memorial to the late

Dr. Charles Goddard Weld, Boston. The donors are the mother, widow and daughter of Dr. Weld.——Funds for the purchase of another Boston section of ambulances are being raised by the local executive committee, and other sections will be sent to France as funds are collected.——It is reported that four more sections of the American Field Ambulance will be offered to the French army in April.

Naval Medicine.—At a meeting of the Medical Society of London, February 12, Surg.-Gen. Humphry D. Rolleston delivered an address on "Naval Medicine," in which he spoke of the exceptionally good health in the Grand Fleet, which was due, in his opinion, to the comparative isolation of the fleet and especially of the Grand Fleet; to the quarantine precautions in drafting from the shore establishments to the fleet; to the instruction given by the medical officers to the ships' crews on personal hygiene, with especial reference to venereal disease and alcoholic excess; to measures for the mitigation of the effects of the monotony entailed by awaiting events, and to improvements in the ventilation of the ships.

LONDON LETTER

London, March 5, 1917.

The War

THE MEDICAL SERVICE

In Parliament, the minister in charge of the army estimates, Mr. Forster, stated that nothing in the war is more striking than the triumph of science over disease, wholly upsetting the experience of former wars. One of the most remarkable phenomena is the almost total disappearance of typhoid fever, which in former wars had decimated our armies even more effectually than the efforts of the enemy. That was the more surprising when one considered the vast numbers of men, their density on the ground, and the poisoned condition of the soil, especially in France. The latest weekly returns of the number in hospitals suffering from typhoid fever is: France, 4 cases; Saloniki, 9; Egypt, 3, and Mesopotamia, 8, a total of 24. The number of cases of typhoid fever among British troops in France up to November 1 last year was 1,684; of paratyphoid, 2,534, and of indefinite cases, 353, a total of 4,571. In the South African War, nearly 60 000 patients were admitted to hospital, and there were 8 227 deaths. Thus four times as many died from this disease in South Africa as there were cases in France up to November 1. The admission ratio of typhoid fever among the troops in France who had not been protected by inoculation is fifteen times higher than among those who had been inoculated, and the death ratio is seventy times higher. At home during the past year a system of convalescent hospitals, command depots and orthopedic hospitals has been developed and extended. Arrangements have been made with the ministry of pensions by which the problem of the training and the treatment of the discharged soldier will be more effectively dealt with, and arrangements are being made to link up the treatment of the military hospitals with that afforded to discharged soldiers on the outpatient system. The strain on the medical department of providing accommodation for the sick and wounded from the various fronts overseas has been great, and valuable assistance has been received from voluntary hospitals. The system of utilizing the services of the members of the voluntary aid detachments has been highly successful. These women serve abroad in large numbers, and are highly appreciated by the general body of the nursing profession. The system of voluntary aid detachment hospitals has been invaluable in linking up the military medical system with a large number of sympathetic workers among the civil population. The great resources of the British Red Cross have been ungrudgingly placed at the disposal of the medical department on many occasions. A special committee had been recently established by that society, on which are representatives both of the war office and the ministry of pensions, for dealing with certain classes of disabled soldiers, such as neurasthenics, epileptics, and others requiring institutional treatment. This further strengthens the link between the military hospitals and civil institutions. The venereal rate in the army today is no higher than it was in ordinary time of peace. The absence of statistics for the general population in the days before the war renders it impossible to say whether the total number of cases of venereal disease in the army is higher than in the corresponding portion of the civil population of corresponding age. Every effort is being made to reduce the rate still lower than it was. The National Council for the Prevention of Venereal Disease has given great assistance by providing lecturers especially chosen to lecture to troops in camps and barracks. These lectures have been largely attended and much appreciated by the soldiers.

THE PHYSICAL TREATMENT OF DISABLED SOLDIERS

The Section of Balneology and Climatology of the Royal Society of Medicine appointed a committee to investigate the physical treatment and training of disabled soldiers in France and England. After two years' work an important report has now been published. Physical treatment is asserted to be the thing most needed to prevent the formation of an army of cripples. At the British spas, large numbers of wounded have been treated by waters and baths with good results. At many military hospitals and convalescent camps, physical treatment is also being carried out. But the vocational reeducation of disabled soldiers has been in many instances carried out without medical supervision, and not associated with any concurrent physical treatment or with any systematic measurement of the patient's disability and progress. The committee does not regard this as satisfactory. On the other hand, excellent reeducational work under medical supervision has been already accomplished at the military orthopedic hospital at Shepherd's Bush and at certain of the command depots. In France, under both the French and Belgian governments, the arrangements for industrial, intellectual and agricultural reeducation are being continually extended; and are in every case under medical direction. Importance is attached by French experts to the combination of reeducation with physical treatment. The committee agrees with this, and thinks that physical treatment should in the great majority of cases be provided as an integral part of reeducation, and that the determination of a man's capacity for work ought not to depend on casual observations, but on the results of the periodic measurement of his progress by instruments.

The committee makes the following recommendations: 1. A service of physical treatment consisting of hydrotherapy, electrotherapy (including roentgenotherapy), mechanical treatment, medical gymnastics and massage should be made available at the earliest possible date for all soldiers needing it who are disabled by war. 2. Centers of physical treatment, comprising all the foregoing methods, should be established throughout the country on an adequate scale, and wherever possible in association with general hospitals, so that other forms of special treatment and diagnosis may be readily available. 3. At such centers there should be a uniform system of measurements and records. 4. Centers of reeducation and centers of physical treatment should be closely associated. 5. All centers of physical treatment should be under medical direction, with periodic inspection, and physicians who are experts in the various departments of physical treatment should be appointed to the staff. 6. At the centers first established, instruction in methods of physical treatment should be provided for the use of physicians, medical students and assistants.

Conjunctivitis from Cats

At the Royal Society of Medicine, Mr. Arnold Lawson reported three cases of conjunctivitis due to the habit of fondling cats. A girl, aged 15, had a pet Persian cat which she fondled a great deal. One day after burying her face in its fur, her eyes became suffused, and she had a severe sneezing fit. Next day the eyes were swollen, and a purulent discharge was exuding. The nostrils were also swollen, and purulent sanguineous matter was issuing from them. Cultures made from the discharge and from the cat's fur showed *Staphylococcus aureus* in abundance. Recovery took place under treatment. The second patient was a boy, aged 14, who suffered from swelling of the left eye and the cervical glands which a local physician diagnosed as mumps. It did not run the usual course of mumps; there had been no fever or pain. When seen by Mr. Lawson a fortnight later there was a brawny swelling over the parotid and in the neck, and the lids of the left eye were considerably swollen, with inflammation of the conjunctival surface of both tarsi. A mucopurulent discharge was exuding from the furrows of the swollen tissues. Tuberculosis seemed improbable on account of the rapidity of development. The boy had been in the habit of walking about with his pet Persian cat perched on his left shoulder and cuddling it. The treatment consisted in cutting, scraping, and swabbing with 2 per cent. silver nitrate. Six weeks' treatment was required, and the swelling of the glands did not subside for three months. The scrapings were cultivated, and revealed *Streptococcus longus*, *Streptococcus brevis* and *Staphylococcus albus*. A dog in the house and the cat were examined, and the latter was proved to be the culprit. The third, and most severe case, occurred in a girl aged 5 years. She developed mucopurulent conjunctivitis of a mild type after nursing a favorite cat, which divided its attention between the house and a cowshed. After a time the cervical glands were involved in a serious degree. The upper lid showed an exuberant mass of cock's-comb granulations, especially on the retrotarsal tissue. Mr. Lawson suspected conjunctival tuberculosis. He cut and scraped away all the infected parts, and treated the residue with mitigated silver nitrate stick. An excellent recovery ensued after three small operations in the course of the next three months. There had been no recurrence in eyes or glands. A pathologist, Mr. Browning, pronounced the infection to be due to the bovine type of tubercle bacillus. Scrapings injected into a guinea-pig resulted in rapid wasting and death within a fortnight.

PARIS LETTER

Paris, March 8, 1917.

The War

PROLONGED GENERAL ANESTHESIA WITH ETHYL CHLORID GIVEN IN REPEATED SMALL DOSES

Dr. Cazin reported to the Society of Surgeons of Paris the excellent results which he has had from the use of ethyl chlorid as an anesthetic when treating extensive wounds, and when making dressings that ordinarily were very painful. Cazin prefers the simple compress to all other apparatus used in connection with this form of anesthesia, because it is practical. He extolled highly the value and safety of this method. Malherbe and Boureau have applied 6,275 ethyl chlorid anesthesias, including infants a few months old and adults of every age, in which there was not a single complication. Cazin has operated with ethyl chlorid for an hour to an hour and a half with excellent results.

HEMOPTYSIS OF PARASITIC ORIGIN IN SOLDIERS FROM THE FAR EAST

Salmon and R. Neveu called the attention of the Medical Society of the Hospitals of Paris to a condition which is mistaken for tuberculosis. This affection, a pulmonary distomatosis, is but little known in France, although it is common in the Orient. At present, large numbers of troops composed of men from the French colonies in the East are operating in France and, undoubtedly, some of them, at least, are infected with these distomas. If so, they may serve as infection foci, their sputum being the infectious agent. For these reasons, and because of the frequency with which hemoptysis is caused by the long distoma (*Paragonimus westermanni*) and to prevent the dissemination of these diseases, Salmon and Neveu sound this note of warning. They call attention to the ease with which the condition may be recognized by making an examination of the sputum, and finding in it blood and the eggs of the *Paragonimus*. They propose (1) that in all cases of bronchitis occurring among the Annamites or the Indo-Chinese troops the patients be, without delay, sent to a base hospital; (2) that all Asiatics who are suffering from a stubborn bronchitis, with a rusty sputum or hemoptysis be isolated immediately, and that they be furnished with sputum cups which are kept properly sterilized.

PRESENCE OF ARSENIC IN CHEMICALS AND IN FOODS

MM. Kohn-Abrest and Bouligand have made an investigation of the industries resulting from the war and in which the chemicals used by manufacturing pharmacists and in food products might have contained arsenic. They informed the medicolegal society that it is difficult, if not impossible, to obtain hydrochloric acid which is free from arsenic. Because of the presence of arsenic in glucose, bakery goods may contain this poison.

Dr. Chassevant stated that it is impossible to obtain glucose which is free from arsenic, and therefore the use of a sugar solution in therapeutics may be fraught with danger. He proposes to use in such solution an inert sugar which would be equally useful.

THE "LEAVE OF ABSENCE TO WORK" FOR THE WOUNDED

The undersecretary of state for the sanitary service of the army has decided to give a "leave of absence to work" to some of the wounded to improve their condition. These men are permitted to work in a national industry. Consultation will be held twice a month in each physiotherapeutic center of certain regions when the authorities will select the men to whom this measure is applicable. These men will be given leave of absence to return home and engage in their habitual occupation. While working in this capacity they will be under the supervision of the gendarmerie.

ALLIED SURGICAL CONFERENCE

The first Allied surgical conference will be held, March 15, in the museum of Val-de-Grâce, under the presidency of the minister of war.

Association News

THE NEW YORK SESSION

Garage Accommodations

The local Committee on Arrangements for the New York annual session of the American Medical Association submits the following table of garages, together with the prices for storing and caring for machines. Undoubtedly a large number of Fellows will go to New York by automobile, and it is hoped that this list will be of service in making reservations for the care of machines, and also in giving in general the prices which prevail for storage and service in New York.

GARAGE RATES FOR A. M. A. ANNUAL SESSION

Garage and Address	Overnight Storage		Weekly Storage	
	Without Service	With Service	Without Service	With Service
Acon Garage Corporation, Broadway and 76th	$1.00	$2.00 to $2.50	$7.00	$10.00 to $12.00
Aetna Garage Company, 4506 Park Ave	0.75	1.50	4.00†	.....
Biltmore Garage, 134 East 41st	1.00	2.00 to 2.50	7.00	10.00
Blue Sprocket Garage, 139 East 31st	1.50	2.50	.....	.....
Bord's Garage, Inc., 114 West 50th	1.00	2.00	.....	10.00
Broadway and 62d Street Company	1.25	2.50	.....	10.00 to 12.00
Corvan Garage, 122 West 54th	.....	2.50	.....	.....
Equitable Garage, 8th Ave. and 49th	1.00	2.50	6.00	10.00
Fifty-Seventh Street Garage, 156 E. 57th	1.00	2.50	.....	.....
Flint Garage, 155 W. 56th	1.00	2.50	.....	.....
49th Street Garage, Inc., 147 W. 49th	1.00	2.50	.....	10.00
Gotham Garage Company, 102 W. 46th	1.50‡	.....	.....	7.00 to 10.00
Great Northern Garage, 114 W. 56th	1.00	2.50	.....	.....
Halcyon Garage Co., Inc., 226 E. 65th	$0.75 to $1.25	1.50 to 2.25	.....	.....
Hollywood Garage Corporation, 238 E. 64th	1.00	2.50	.....	15.00
Hudson Garage, 220 W. 41st	1.50	2.00	.....	.....
International Garage Co., 252 W. 40th	1.00	2.50	.....	10.00
Joselyn Garage, Inc., 112 W. 52d	1.00	2.50	.....	.....
Lexington Auto Garage, 150 E. 39th	1.00 to 1.25	2.50	.....	12.50
Monmouth Garage, Inc., 126 E. 54th	1.00	2.00	.....	10.00
St. Paul Garage, 36 W. 60th	1.50	2.50	.....	12.00

† With one washing; additional washings, $0.75 each.
‡ Washing and cleaning extra, $1.50 to $3.00.

Marriages

Frank W. Romaine, M.D., Corozal, C. Z., to Miss Ellen Gray Cleland of Philadelphia, at Ancon, C. Z., February 24.

Readie Garfield Snyder, M.D., New York, to Miss Theresa O'Neil of Garden City, L. I., N. Y., in Chicago, March 16.

Stafford Baker Smith, M.D., to Miss Amyah Mary Hodges, both of New York, February 24.

Alfred Adolph Strauss, M.D., to Miss Hilda Grunsfeld, both of Chicago, March 27.

Elmer Clayton Terry, M.D., to Miss Lovett, both of Washington, D. C., March 1.

Deaths

Samuel Posey Collings, M.D., Hot Springs, Ark.; Jefferson Medical College, 1870; aged 72; a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association in 1901 and 1902; a member of the American Urological Association; for a short time after his graduation demonstrator of anatomy in the Medical College of Indiana, Indianapolis, and demonstrator of anatomy and lecturer on venereal diseases in the College of Physicians and Surgeons, Indianapolis; a practitioner of Hot Springs since 1878; consulting surgeon and a member of the board of governors of St. Joseph's Hospital, Hot Springs; a director in the Arkansas National and Security banks, Hot Springs; one of the most esteemed and beloved practitioners of that city; died at his home, March 16, from hypostatic pneumonia.

Moses James White, M.D., Hartford, Conn.; New York University, New York, 1884; aged 57; assistant physician to the New York City Asylum for the Insane for three years after his graduation, and afterward first assistant physician to the Milwaukee County Hospital for the Insane, Wauwatosa, and then superintendent from 1888 to 1915; a Fellow of the American Medical Association, and a member of the American-Medico Psychological Association; clinical professor of insanity in the Wisconsin College of Physicians and Surgeons and professor of mental diseases in Marquette University, Milwaukee; consulting physician to Milwaukee County Hospital and the Milwaukee Asylum for the Chronic Insane; a frequent contributor to the literature of insanity; died in Hartford, March 14.

David Porter Morgan, M.D., Clarksburg, W. Va.; Jefferson Medical College, 1876; aged 73; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; a veteran of the Civil War; local surgeon of the Baltimore and Ohio System since 1893; a member of the state board of health in 1901 and made president of the board in 1905; president of the West Virginia State Medical Association in 1893, and at one time president of the Harrison County Medical Society; for several years president of the West Virginia Educational Association; died at his home, March 10, from acute gastritis.

William Blackwell Welch, M.D., Fayetteville, Ark.; University of Nashville, Tenn., 1859; aged 88; a Fellow of the American Medical Association; one of the founders of the Washington County Medical Society, and one of the founders and first president of the Arkansas Medical Society; one of the leading citizens of northwest Arkansas; brigade surgeon in the Confederate service during the Civil War; president of the hospital board which built the Fayetteville City Hospital; died at his home, March 9, from cerebral hemorrhage.

Newton J. Phenix, M.D., Colorado, Texas; Tulane University, New Orleans, 1890; aged 56; a Fellow of the American Medical Association, and since 1912 councilor of the El Paso-Big Springs District Medical Society; secretary from 1904 to 1910, and president in 1910 and 1911; health officer of Mitchell County; president and senior member of the local board of education; proprietor of the Phenix Sanitarium, Colorado; died, Dec. 30, 1916, from gunshot wounds inflicted by a former employee with homicidal intent.

Albert Eugene Ham, M.D., Providence, R. I.; College of Physicians and Surgeons in the City of New York, 1868; aged 73; a Fellow of the American Medical Association, and formerly president of the Providence Medical Association; consulting physician to St. Mary's Orphanage and the Providence Dispensary, and formerly visiting physician to the Rhode Island Hospital; died at his home, January 24, from carcinoma of the stomach.

David Gochenauer, M.D., San Diego, Calif.; University of Pennsylvania, Philadelphia, 1868; aged 72; a Fellow of the American Medical Association; formerly president of the San Diego County Medical Society, president of the San Diego Chamber of Commerce and professor of medical diagnosis in the College of Physicians and Surgeons, Los Angeles; died at his home, February 20, from heart disease.

Charles F. Swan, M.D., Chicago; Medical College of Ohio, Cincinnati, 1875; aged 64; a Fellow of the American Medical Association; a pioneer practitioner of South Chicago; chief of staff of the South Chicago Hospital; from 1900 to 1902 a member of the staff of Cook County Hospital; who established the first bank in South Chicago; died at his home, March 19, from cerebral hemorrhage.

Henry Lee Williford, M.D., Bartlett, Tenn.; New York University, New York, 1880; aged 62; for many years a practitioner of Bartlett; formerly professor of materia medica and therapeutics in Memphis Hospital Medical College; president of the Shelby County Board of Health from 1880 to 1892; a member of the Memphis school board; died at his home, February 28, from pneumonia.

Frederick James Will, M.D., Des Moines, Iowa; University of Iowa, Iowa City, 1883; aged 57; a Fellow of the American Medical Association; medical director of the Bankers' Life Insurance Company, Des Moines; district surgeon to the Chicago and Northwestern System; colonel and surgeon-general of Iowa from 1907 to 1909; died in San Antonio, Texas, March 7, from arteriosclerosis.

Clotworthy Birnie, M.D., Taneytown, Md.; University of Pennsylvania, Philadelphia, 1870; aged 73; a Fellow of the American Medical Association; president of the Medical and Chirurgical Faculty of Maryland, 1899-1900; formerly president of the Carroll County Medical Society; died at his home, March 16, from cerebral hemorrhage.

Charles C. Deming, M.D., Friendship, N. Y.; New York University, New York, 1869; formerly a member of the Medical Society of the State of New York, and president of the Allegany County Medical Society; proprietor of a sanatorium for several years and at one time health officer of Friendship; died at his home, March 5.

Ralph Root Hollopeter, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1912; aged 29; a Fellow of the American Medical Association, and a member of the Philadelphia Laryngological Society; a member of the faculty and staff of his alma mater; died at Asheville, N. C., March 12, from pneumonia.

Leonard Franklin Dozier, M.D., San Francisco; Oglethorpe Medical College, Savannah, Ga., 1859; aged 80; at one time professor of materia medica in his alma mater; a Confederate veteran; for twenty-nine years medical superintendent of the California State Hospital, Napa; died at his home, March 9.

John Ryland Eaton, M.D., Chittenango, N. Y.; Syracuse, N. Y., University, 1875; aged 67; a member of the Medical Society of the State of New York; for more than twenty-five years health officer of the town of Sullivan; at one time president of the village of Chittenango; died at his home, March 12.

Henry Everett Hays, M.D., Attica, Kan.; University Medical College, Kansas City, Mo., 1900; aged 40; a Fellow of the American Medical Association; health officer of Harper County; local surgeon to the Santa Fe System; died at his home, March 11, from chronic interstitial nephritis.

Daniel W. Bortz, M.D., St. Lawrence, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 61; died at his home, March 4, from uremia.

Preston H. Sharp, M.D., Pontiac, Mich.; Columbus (Ohio) Medical College, 1884; aged 68; died at his home, Dec. 13, 1916, from cerebral hemorrhage.

Thomas Richard Baldwin, M.D., Waco, Texas; Eclectic Medical Institute, Cincinnati, 1890; aged 61; died at his home, January 16, from pneumonia.

Daniel Galbraith, M.D., Dresdon, Ont.; University of Toronto, Ont., 1868; aged 76; died at his home, Dec. 20, 1916, from cerebral hemorrhage.

J. G. Pickering, Zavalla, Texas (license, years of practice, Texas, 1907); aged 99; died at the home of his daughter near Zavalla, February 4.

Carl M. Bock, M.D., Greenville, Mich.; University of Erlangen, Germany, 1876; aged 64; died at his home, March 5, from pneumonia.

Peter Franklin Eagle, M.D., Troy, Ohio; Washington University, St. Louis, 1878; aged 60; died at his home, March 3, from pneumonia.

Willard Remington Baker, M.D., Tombstone, Ariz.; University of Minnesota, Minneapolis, 1912; aged 34; died recently at his home.

Dias S. Smith, Upper Sandusky, Ohio (license, Ohio, 1896); aged 62; died at his home, February 22, from valvular heart disease.

Emanuel H. Gebauer, M.D., Indianapolis; Barnes Medical College, St. Louis, 1897; aged 45; died at his home, March 7.

Frank Hanson, M.D., Worden, Ill.; Rush Medical College, 1888; aged 51; died in Joliet, Ill., recently, from pneumonia.

William T. Lively, M.D., Buffalo, Ky.; University of Louisville, Ky., 1875; aged 73; died at his home, January 18.

Correspondence

Compulsory Health Insurance

To the Editor:—The numerous letters on health insurance contained in The Journal, March 10, 1917, prompt me to remind your readers of one or two facts which have been overlooked by your correspondents.

It is suggested by Dr. Albert Bowen of Rochester, N. Y., that the remedy for inadequate wages, insufficient to meet the expenses of illness, is higher wages. To this we should all subscribe. However, those of us who face the practical questions realize, just as the Massachusetts Commission on Social Insurance has pointed out, that there is no immediate prospect of a sufficient increase in wages to enable the American wage earner to bear the full cost of sickness. Even if a rise of wages should occur, the incidence of sickness is so uncertain that it is essentially an insurable proposition. For example, the Social Insurance Commission in California found that from a group of 600 persons, more than one half of the total amount expended for medical care by the group was spent by twenty-one individuals. The uncertainty of sickness makes it desirable to insure one's health, just as persons of means insure their property against the risk of fire.

Moreover, we realize that it is unjust to place the full cost of sickness on the worker, whereas industry, because of its long hours, its often dusty, ill ventilated, poorly lighted workrooms, and even the poisons handled, is responsible for much illness. It is only a matter of justice that the employer should be expected to bear this portion of his human repair bill, just as he now bears that portion already covered by the workmen's compensation laws. Legislative action is the only method by which the responsibility of industry for illness can be placed on industry.

Another correspondent, Dr. W. D. Chapman, refers somewhat disparagingly to the free choice among the panel physicians under the British insurance act. In practice, the insured workers of Great Britain have had free choice among practically all of the physicians previously practicing in the industrial districts. Moreover, it should be borne in mind that the act there, as well as the bill introduced in the American legislatures, provides that all physicians desiring to practice under the act may join the panels.

So far from attempting to exploit the medical profession, the drafters of the health insurance bills have taken unusual pains to consult with physicians. If the medical provisions of the bill, as now drafted, are unsatisfactory, it is because the profession has been slow in offering constructive suggestions. From the outset, criticism and suggestion have been most cordially invited, and are still welcome.

I cannot help but feel that the opening of the columns of The Journal of the American Medical Association for a free discussion of this question will be a most important factor in calling forth constructive suggestions from your readers.

John B. Andrews, New York.
Secretary, American Association for Labor Legislation.

To the Editor:—In Public Health Bulletin 76, on "Health Insurance, Its Relation to the Public Health," p. 44, it says:

> It must be evident that the average wage worker's family with an income of $750, if it must spend $650 on food, rent, clothing and fuel and light, has very little surplus available for extraordinary expenses. Out of the remaining $100 must come the funds for amusements and recreation, books, papers and magazines, lodge and union dues, benefit and insurance premiums, sickness, upkeep of household and kitchen furnishings and the hundred-and-one incidental expenditures that are common to the most frugal households. A death in the family is a heavy expense; the birth of an additional member of the family is a cause not only of lessened family income where the wife is a wage earner, but also of immediate expense and the promise of increasing cost in the future. For we are speaking of the "average" family with an income of $700 to $800 a year, which is considered adequate if everything "goes right." But sometimes things "go wrong."

This statement indicates that the invisible hand back of the health insurance bill is capital, for it admits that the physician is necessary to the laboring man, but does not provide for any increase in wage to meet the necessity. Instead it aims to obtain the physician's services free of charge. A slave owner will give to his slave what is best to obtain the best work from him. This scheme will give the same to the laborer, but aims to obtain the physician's part practically free.

Compulsory health insurance pretends to assist the poor while it robs them of their independence. Nearly all physicians have taken care of confinements for anywhere from the tenth to the thirteenth child when the entire family with the boarders have lived in one room, children sleeping on the floor with the same ragged clothing that they wear through the day, boarders standing around while labor is in progress, and no change of clothing for the mother after the baby has been born.

Health insurance will not help situations like this, for the physician does not expect to receive any fee for his services; but it will make matters worse by furnishing a heartless, overworked, 15-cent-a-call contract physician in place of a physician with a kind heart, who gladly donates his services to help humanity. A mercenary, overworked contract physician would not take the necessary time to care properly for a woman in labor and would thus increase sickness, misery and suffering. Compulsory health insurance is a step backward and tends to degrade both the physician and the laborer. If the laborer must have health insurance, then make it voluntary and give him a certain benefit without dictating to him as to the physician he should employ or the amount he should pay him.

George N. Jack, M.D., Buffalo.

The Diagnosis and Serum Treatment of Anterior Poliomyelitis

To the Editor:—May I draw the attention of the author and your readers to a misleading error contained in the paper by Dr. Zingher on this subject (The Journal, March 17, 1917, p. 817)? In the opening paragraph Dr. Zingher states that the treatment of poliomyelitis by means of immune serum was recommended by Netter, and that "later, Flexner and Lewis carried out some experimental work in monkeys, and showed that the intraspinal injection of immune serum twenty-four hours before the intracerebral inoculation of a fatal dose of virus acted as a preventive against the disease."

Any one examining the footnote accompanying the article would be mystified by the quotation, since the two papers referred to by Netter and his co-workers are dated 1915 and 1916, respectively, while the two papers of Flexner and Lewis were published in The Journal, May 28 and Aug. 20, 1910.

It will be particularly illuminating to quote what Netter himself says of the serum treatment in the first paper which he published on the subject with his co-workers Gendron and Touraine in the *Comptes rendus des séances de la Société de biologie* (1911, **70,** 625). They say:

> Flexner and Lewis conceived the idea of injecting the serum into the spinal canal for several consecutive days, a method which gives good results in cerebrospinal meningitis, and the necessity for which is justified by the fact that the serum, being rapidly absorbed by the blood, immediately leaves the spinal canal. They obtained favorable results by this method. In fact, the disease was prevented from developing provided the injections of serum were begun as early as eighteen to twenty-four hours *after* the introduction of the virus. . . . The same good results were obtained by means of immune serum in the case of a monkey treated on the day of inoculation (by the nasal route) as well as three and six days later. Human serum collected from persons who had had poliomyelitis a long time before was equally active against the poliomyelitis of the monkey.
>
> The experiments of Flexner and Lewis show the possibility of serotherapy for experimental poliomyelitis, but the serum, in order to produce good results, must be injected every day during the first days of sickness . . . We do not see how one can begin treatment as early as this in human cases. It is true that in man poliomyelitis is less serious than in the monkey. The mortality is decidedly less, scarcely 10 per cent. of all cases, instead of more than 50 per cent.; the development is less rapid.

They then proceed to describe the employment of the serum from recovered individuals in four acute cases of poliomyelitis.

In other words, the experimental observations of Flexner and Lewis furnished the immediate starting point of the serum treatment of poliomyelitis in man, and showed that the immune serum of recovered monkeys and human beings has protective power when given to monkeys not in advance of, but as long as twenty-four hours after an intracerebral inoculation of the poliomyelitic virus.

Harold L. Amoss, M.D.
The Rockefeller Institute for Medical Research, New York.

The Shortage of Salvarsan

March 19, 1917.

To the Editor:—In The Journal, March 10, 1917, p. 785, there appeared a comment on the salvarsan situation in this country at the present time. As I am particularly interested in obtaining salvarsan, I wrote to Senator Hoke Smith, enclosing the article from The Journal. The letter to Senator Smith was as follows:

> Hon. Hoke Smith,
> U. S. Senate, Washington, D. C.
>
> *Dear Sir:*—As one of the physicians of your constituency, I write to direct your attention particularly to the shortage of salvarsan in this country. This subject is briefly but well presented in the enclosed editorial clipped from the last copy of The Journal of the American Medical Association.
>
> Those of us who are engaged in active practice encounter a very large number of cases of ill health, the primary cause of which is syphilis. Salvarsan has proved to be of wonderful efficiency in the treatment of these cases. In the state of Georgia, and in the city of Atlanta, there is a great demand for this remedy, which frequently produces results obtained by no other substance. However, the time has come when it is impossible to obtain this except at exorbitant prices from such individuals as have bought up the visible supply.
>
> In view of our present relations with Germany, would it not be possible for Congress to provide relief for the situation so that this remedy may be available?

Senator Smith replied as follows:

> March 17, 1917.
>
> Your letter of the 12th in regard to the manufacture of salvarsan has been duly received.
>
> I will take the matter up with Senator James, chairman of the Committee on Patents, and see what can be done.

It occurs to me that it would be advisable for physicians in various parts of the country to write to their representatives in Congress, and to Senator James, chairman of the Committee on Patents, urging the abrogation of the special privileges granted in connection with the manufacture of salvarsan, and also urging that steps be immediately taken for the production of the preparation in this country.

Lewis M. Gaines, M.D., Atlanta, Ga.

Health and Athletics

To the Editor:—Physicians working in colleges have an opportunity to obtain facts concerning the influence of athletics on the health of young men. The accompanying table gives the result of a short analysis made after the routine examination of 745 new students at the Pennsylvania State College health service last fall.

The data were obtained partly from a careful past history included at the examination. The conditions selected for comparison are in our experience the most frequent and representative of health and disease in young men.

In the table, the first column of figures gives general percentages for the entire 745 students who gave a history of previous competitive athletics averaging 2.8 months during each of 1.8 years. The second column gives the same for 100 students selected for maximum athletic experience. Their average is 8.1 months for each of five years.

COMPARATIVE INFLUENCE OF GENERAL ATHLETICS AND MAXIMUM ATHLETIC EXPERIENCE

Condition	Percentage	
	General	Maximum
Previous sore throats	45	44
Previous tonsillitis	24	38
Previous head colds	29	25
Previous boils	18	26
Previous constipation	9	16
Those taking laxatives regularly (at least once a week)	10	18
Those wearing glasses	21	24
Those having diseased tonsils	20	21
Those having definite acne	13	8
Those having dental caries, marked	8	4

Warren E. Forsythe, M.D., State College, Pa.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HEART MURMUR IN AORTIC LESION—RELATION OF HEART DISEASE TO LABOR

To the Editor:—Kindly discuss the following questions:

1. In aortic regurgitation with probable stenosis do we often have a murmur so transmitted to the radial as wholly to mask the succession of sounds following the systolic reading? This murmur is harsh, high pitched, and heard with ease over the right radial at the wrist.

2. What is the most plausible explanation for this transmission to the right but not to the left radial?

3. Could there be a relation between such transmission and a systolic pressure 15 to 25 mm. (Tycos) higher in the right arm than in the left? Blood Pressure, systolic, respectively, 130 to 145; 115 to 130; diastolic, respectively, 10 to 30?

4. This patient, a woman, aged 24, with good family history and negative past history except for acute rheumatic fever eleven years ago with endocarditis, has since had three attacks of cardiac decompensation, the last four weeks ago, when the patient was seven months' pregnant, at which time there was a process in the lower lobe of the left lung, the symptoms of which with the physical signs strongly suggested lobar pneumonia. There is one child, aged 2½, at whose birth labor was easy. Compensation has now been regained.

What is the prognosis for spontaneous delivery at term? What is the present concensus of expert opinion as to the management of a case like this, the choice of method of delivery?

O. B. Lynch, Littlefield, Texas.

Answer.—1. We assume that "probable stenosis" of the aortic valve is a correct diagnosis. This assumption is supported by necropsy experience that when a lesion of the aortic valve occurs following rheumatism or similar infections, there is usually some stenosis as well as incompetence of the valve. The loudness of the murmur (transmission far out in the peripheral arterial system) also argues for aortic stenosis, although the systolic thrill palpable over the right second interspace and surrounding region which is looked for in such cases is not mentioned. The loud, harsh systolic murmur of aortic stenosis is often heard in the carotid and subclavian, and occasionally may also be heard, as in the case described, in the arms to the radials.

2 and 3. Under the conditions described (age and probable etiology) the difference in blood pressure between right and left sides suggests that the flow of blood to the left arm is not as free as to the right, a condition which might be brought about by difference in vessel caliber or from pressure from without; any such condition would impede the transmission of vibration, and tend to reduce the distance to which the murmur could be transmitted.

4. The lesion in the lung which occurred in association with a period of broken compensation may of course have been a lobar pneumonia, but pulmonary infarction, which is often seen under such circumstances with pain, bloody expectoration and fever, would have to be considered, as also passive congestion with possibly pleural effusion.

In a woman with an aortic lesion in whom compensation has been repeatedly broken, once during the present pregnancy, we should regard the prognosis for safe delivery at term very doubtful.

Special conditions not mentioned in the necessarily abreviated description given in the question may modify the indications for treatment; but assuming that no such unusual conditions exist, we believe the following plan would receive the approval of obstetricians. In a multipara with normal pelvis (easy labor two and a half years ago), with the heart lesion described, in whom pregnancy has advanced to the seventh month, labor should be induced only if compensation has begun to fail. If compensation is maintained labor at term should be allowed to procede to the end of the first stage and then instrumental delivery employed.

ALCOHOLISM

To the Editor:—1. What percentage of deaths are directly or indirectly due to alcoholic poisoning?

2. What are the most common diseases caused?

3. Relatively, how are men and women affected by alcohol?

A. Allen John, M.D., Oregon, Ill.

Answer.—1. Obviously there are no exact figures available to answer this question.

2. There are numerous diseases supposedly indirectly related to alcoholism; among them are arteriosclerosis, cirrhosis of the liver, nephritis, gastritis and various psychoses. The question of venereal disease control is inextricably mixed up with the control of alcoholism. The diseases or conditions specifically caused by alcohol are alcoholism and delirium tremens.

3. In general, alcoholism may be stated to have the same effects in both men and women. Response to it varies frequently with the psychologic status of the individual. The following is a list of references to articles on the subject:

Heron, David: A Second Study of Extreme Alcoholism in Adults, University of London, Francis Galton Laboratory for National Eugenics, Eugenics Laboratory Memoirs XVII, Dulau & Co., Ltd., 37 Soho Square, West, London, 1912, price 5 shillings net.

O'Malley, Austin: The Cure of Alcoholism, B. Herder, 17 South Broadway, St. Louis, 1913.

Atwater, W. O., et al.: Physiological Aspects of the Liquor Problem, Houghton, Mifflin & Co., Boston and New York, 1903, 2 volumes.

Mason, Lewis D.: The Present Status of the Results of the Study of Alcohol in America, *Jour. Inebriety*, July, 1913; this may be obtained in reprint form from the author, 71 Jerolomon Street, Brooklyn.

Mason, Lewis D.: The Etiology of Alcoholic Inebriety, with Special Reference to Its True Status and Treatment from a Medical Point of View, *Month. Cycl. and Med. Bull.*, September, 1910.

Emerson, Haven (Commissioner of Health, New York): The Duty of Health Departments on the Alcohol Question, Publication 50, Reprint Series, October, 1916, New York City Department of Health.

Drunkenness in Massachusetts, Conditions and Remedies, Special Report of the Board of Trustees of the Foxboro State Hospital, 1910, Wright and Potter, State Printers, 18 Post Office Square, Boston.

Maus, L. Mervin (colonel U. S. Army Medical Corps): Alcohol and Officials, etc., reprint from the *Journal of the Military Service Institution*, 1912.

The Relation of Alcohol and Tobacco to Personal Hygiene and Public Health, Health Bulletin 3 (Series 1911-1912), University of Wisconsin, Madison.

The Liquor Problem and Public Health, *Bull. North Carolina State Board of Health*, December, 1912, W. S. Rankin, Secretary and Treasurer, Raleigh, N. C.

First Annual Report of the Board of Inebriety of the City of New York, 1913.

Treatment of Public Intoxication and Inebriety, Publication 108, State Charities Aid Association of New York, March 20, 1909, United Charities Building, 105 East Twenty-Second Street, New York.

Fisher, Irving: The Attitude of the College Man Toward Alcohol, Reprinted from the Eli Spring Book, May, 1915; Sale of Intoxicating Liquors, Washington, Government Printing Office, 1912. Refer to 42108-12-1 when ordering.

Phelps, Edward Bunnell: The Mortality of Alcohol, a Statistical Approximation of the Deaths in the United States in Which Alcohol May Figure as a Causative or Contributory Factor, Thrift Publishing Company, New York, 1911. This book should give much of the information desired.

The *Metropolitan*, published by the Metropolitan Life Insurance Company of New York, Volume 25, No. 11, contains a number of articles along this line.

VEDDER'S STARCH MEDIUM

To the Editor: Where can I find a description of the preparation of Vedder's starch culture medium which Dr. Charles F. Craig mentioned in his article on "The Complement Fixation Test in the Diagnosis of Tuberculosis" (The Journal, March 10, 1917, p. 773).

Kindly use my initials if published in The Journal. E. W. W.

Answer.—The starch medium devised by Captain Vedder for the cultivation of the gonococcus is thus described in the *Journal of Infectious Diseases*, May, 1915, p. 385:

> The medium consists of beef infusion agar to which 1 per cent. of starch has been added. Beef infusion is prepared according to the usual method employed for making beef broth. Commercial meat extracts do not give as good results. To the beef infusion sufficient agar is added to make from 1.5 to 1.75 per cent. agar. No peptone or salt is added, since the gonococcus appears to grow better on mediums without peptone or salt. If much more than this amount of agar is added, the medium will be too dry. This mixture is cooked, clarifi
> and filtered according to the method of preparing
> agar. It is then neutralized so that the final reac
> from 0.2 to 0.5 per cent.
> cornstarch to each liter
> well to grind up the c
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ANSWER.—1. Obviously there a
answer this question.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

Arkansas: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

Arkansas, Eclectic: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Arkansas, Homeopathic: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

Colorado: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1111 Alakea St.

Idaho: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

Illinois: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

Minnesota: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

Nevada: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fé, April 9. Sec., W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

Rhode Island: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Utah: Salt Lake City, April 2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Minnesota June Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 6-10, 1916. The total number of subjects examined in was 18; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 40, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado	(1914)	83
Northwestern University	(1916)	88.9
Rush Medical College	(1896)	86.3; (1916) 82.4, 86.8
University of Illinois	(1915)	85.3
Minnesota College of Physicians and Surgeons	(1904)	75.1
University of Minnesota	(1916)	83, 84.4, 85.3, 85.7, 85.8, 85.8, 86.2, 86.2, 86.4, 86.5, 86.5, 86.6, 86.7, 87, 87, 87.6, 87.7, 87.9, 87.9, 87.9, 88, 88, 88, 88.1, 88.4, 88.4, 88.7, 89, 90, 90, 90; (1917) 83.
Laval University	(1913)	76.5

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College	(1911)	Illinois
Chicago Homeopathic Medical College	(1894)	Indiana
Northwestern University	(1911)	Illinois
Medical College of Indiana	(1898)	Indiana
Medical College of Ohio	(1907)	Indiana
Marquette University	(1915, 2)	Wisconsin

Arizona October Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Oct. 3-4, 1916. The total number of subjects examined in was 10; total number of question asked, 100; percentage required to pass, 75. The total number of candidates examined was 20, of whom 16 passed, including one osteopath, and 4 failed, including 1 osteopath, and 1 other drugless practitioner. The following colleges were represented:

ze PASSED	Year Grad.	Per Cent.
ysicians and Surgeons, Los Angeles	(1915)	79.7
icians and Surgeons of San Francisco	(1913)	75.8
nia	(1912)	81.8
	(1900)	75.6
dicine and Surgery	(1916)	78.1
	(1910)	79.9
	(1914)	84.2
a, Homeopathic	(1893)	69.8*
lege	(1904)	81.2
an Medical School	(1916)	77.4
ty	(1905)	86
l Medical School	(1909)	78.9
l Medical School	(1902)	75.3
al College	(1899)	72.7*; (1901) 71.4*
FAILED		
Industrial University	(1884)	52.5
Washington University	(1905)	50.7

edit allowed for years of practice.

Texas November Report

Dr. J. S. McCelvey, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Fort Worth, Nov. 14-16, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 17, of whom 13 passed, and 4 failed, including 1 osteopath. Thirty-two candidates were licensed through reciprocity, including 4 osteopaths and 1 nongraduate. One candidate was granted a license under a special exemption clause. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville		(1914)	76
Syracuse University		(1901)	81
University of Oklahoma		(1916)	92
Meharry Medical College	(1915) 76;	(1916)	78
Memphis Hospital Medical College		(1909)	75
University of West Tennessee		(1915)	78
Vanderbilt University		(1916)	84
University of Texas		(1915)	87, 87
Mexico City University*		(1910)	77
National School of Medicine, Mexico		(1900)	75
University of Valencia, Spain		(1907)	75
	FAILED		
Atlanta Medical College		(1915)	66
Meharry Medical College		(1912)	60
University of West Tennessee		(1913)	49

* The name of this college does not appear in the official list of Mexican medical colleges.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1911)	Oklahoma
Atlanta School of Medicine	(1907) Georgia;	(1907)	Oklahoma
Hospital Medical College, Atlanta		(1909)	Arkansas
Bennett Coll. of Eclec. Med. and Surg.		(1908)	Arkansas
Rush Medical College		(1893)	Kansas
Louisville Medical College		(1894)	Oklahoma
College of Physicians and Surgeons, Baltimore		(1914)	Maryland
University of Maryland		(1897)	Maryland
Eclectic Medical University		(1911)	Arkansas
Medical College of Ohio		(1895, 2)	Ohio
Uuiversity of Pennsylvania		*	Penna.
Memphis Hospital Med. Coll. (1888) Kentucky; (1896) Arkansas; (1898) (1911) Tennessee; (1911) Mississippi.			
University of Memphis		(1911)	Tennessee
University of Nashville		(1898)	Tennessee
University of Tennessee	(1892) (1914)	(1915)	Arkansas
		(1913)	Mississippi
Vanderbilt University	(1882) (1915) Arkansas;	(1914)	Tennessee

College	LICENSED UNDER SPECIAL EXEMPTION CLAUSE PASSED	Year Grad.	Total No. Licensed
Boston University		(1893	1

* Date of graduation not given; graduation not verified.

Maryland December Report

Dr. J. P. McP. Scott, secretary of the State Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, Dec. 12, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 36, of whom 27 passed and 9 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1915)	77
Loyola University		(1916)	75
College of Physicians and Surgeons, Baltimore		(1915)	82
Johns Hopkins University (1915) 90, 92; (1916) 78, 88, 92.			
Maryland Medical College		(1912)	77
University of Maryland (1914) 76, 81; (1915) 80, 87; (1916) 76, 78, 78, 79, 80, 80, 81, 84, 84.			
Medico-Chirurgical College of Philadelphia		(1916)	83
Woman's Med. Coll. of Pennsylvania		(1914)	85
Medical College of Virginia	(1915) 79;	(1916)	78
University of Toronto		(1910)	81
	FAILED		
Bennett Medical College		(1914)	*
Chicago College of Medicine and Surgery		(1916)	71
Coll. of Phys. and Surgs., Baltimore		(1915)	74
Johns Hopkins University		(1916)	*
Maryland Medical College	(1904)*	(1913)	*
University of Maryland		(1916)	70, *,*

* No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1898)	(1915)	Dist. Colum.
Georgetown University		(1889)	Dist. Colum.
University of Georgia		(1916)	Georgia
American Medical Missionary College		(1904)	Wisconsin
Kentucky School of Medicine		(1892)	So. Carolina
Coll. of Phys. and Surgs., Baltimore	(1907)	(1911)	W. Virginia
Jefferson Med. Coll. of Philadelphia		(1902)	Penna.
University of Pennsylvania		(1905)	Penna.
Meharry Medical College		(1914)	Tennessee

Book Notices

Syphilis. By Loyd Thompson, Ph.B., M.D., Physician to the Syphilis Clinic, Government Free Bath House. Hot Springs, Ark. Cloth. Price, $4.25 net. Pp. 415, with 84 illustrations. Philadelphia: Lea & Febiger, 1916.

In this, the newest text on syphilis, Dr. Thompson has undertaken to cover the entire subject, considering syphilis not only in general, but also in its special manifestations in the various tissues of the body. His book gives a good exposition of our present knowledge of the disease. For so large a subject, however, he has assigned himself a rather limited space, so that the consideration of many topics is of necessity extremely brief. The greatest criticism to be made against the book is that it is not well balanced. The clinical history of syphilis—its development, its clinical course and its general symptoms—is covered in fifty pages, and it cannot be said to be given with adequate fulness. The same criticism applies to many other subjects, notably to the important subjects of syphilis of the vascular system and of the nervous system. On the other hand, some clinical subjects, such as syphilis of the bones and joints, are considered fully. The chapter on the laboratory aspects of syphilis—on the *Spirochaeta pallida* and on the serum complement reaction—and the chapter on the treatment of syphilis are full and complete. Dr. Thompson belongs to the radical school as regards the treatment of syphilis, and he gives a satisfactory statement of the present vigorous methods of treatment. Altogether, the book is a good summary of our present knowledge of syphilis, and gives abundant evidence of first hand experience with the disease.

The Prevention of Disease. A Popular Treatise. By Kenelm Winslow, B.A.C., M.D., Attending Physician to Seattle City Hospital. Cloth. Price, $1.75 net. Pp. 348. Philadelphia: W. B. Saunders Company, 1916.

This work, by the author of "The Production and Handling of Clean Milk," was written for the public. It opens with a foreword by Charles Mayo, and important subjects throughout the book are introduced by authorities in various fields, who commend the work to the public. The opening chapters discuss tea, coffee, alcohol and drugs, and devote space to an extended consideration of personal hygiene. There is a chapter on the prevention and cure of cancer and one on sexual hygiene and diseases. Prevention of the diseases of childhood is especially well treated. The book is well indexed and attractively bound.

Physical Examination and Diagnostic Anatomy. By Charles B. Slade, M.D., Chief of Clinic in General Medicine, Bellevue Hospital Medical College. Second Edition. Cloth. Price, $1.25 net. Pp. 150, with 40 illustrations. Philadelphia: W. B. Saunders Company, 1916.

In this book the elementary principles of the physical examination of the body, and the location of the normal anatomic structures and features important in diagnosis are described for the student. The book is not intended to take the place of teacher, but to serve as a basis of instruction to be amplified by one. The importance of systematic procedure, and the training of the eye, the ear and the hand are emphasized. No other methods or instruments of precision are mentioned except the simple form of the binaural stethoscope.

Health and Disease: Their Determining Factors. By Roger I. Lee, M.D., Professor of Hygiene, Harvard University. Cloth. Price, $1.75. Pp. 378. Boston: Little, Brown & Co., 1917.

Lee believes that the sanitarian can gain intelligent cooperation only by instruction of the public. In this book he discusses heredity and environment; food; air; exercise and work; light and the eyes; the hygiene of the nervous system; communicable, air-borne, contact, insect-borne and ingestive diseases; milk; sewage disposal; occupational diseases, and sexual hygiene. While the book is designed for lay readers, physicians will find it well worth reading. It should be of benefit to those who wish to keep well and help others in their community to do the same.

Medicolegal

Physicians and Surgeons Restricted in Right to Practice Dentistry

(People vs. Blair (Mich.), 158 N. W. R. 889)

The Supreme Court of Michigan affirms a judgment of conviction of the defendant of having violated the statute regulating the practice of dentistry, although it was conceded that he was a duly licensed physician and surgeon. The court says that he contended that he had the right to extract teeth and to advertise that he would do so, under his license as a physician and surgeon; that as he had a right to perform minor surgery by virtue of his medical certificate, and as it was conceded that the extracting of teeth is minor surgery, he therefore asserted that he was not guilty of the offense charged. The difficulty with his position was that he assumed that the right he once enjoyed as a physician and surgeon to extract teeth could not be taken away from him by the legislature without invading his constitutional right. The right of the legislature to regulate the practice of medicine and dentistry is beyond controversy. Questions affecting the public health, safety and morals of the people are subject to regulation by the legislature under the police power of the state. The legislature has indicated an intention of making the practice of medicine and dentistry two distinct professions by prescribing the conditions and qualifications under which one may practice them. It has made all persons subject to the dental act save physicians and surgeons, for which it created some exceptions. It has stated in express language in the exception what physicians and surgeons may do, and therefore the court must decline to read into the act any implied exceptions in their favor. As the right to practice dentistry and to advertise to do so does not come within the exceptions, the defendant was not thereby protected from the penal provisions of the act. Nor can the court agree with the contention that, as the medical act was passed twelve days after the passage of the dental act at the session of 1913, it should be construed as amending by implication the dental act. Such a construction would be opposed to the trend of legislation. The several acts heretofore passed by the legislature regulating the practice of medicine and dentistry have indicated its intention of separating these professions and making them two distinct professions. By the medical act the legislature has conferred in general terms the right on physicians and surgeons to practice surgery; but by the use of particular words in the dental act it has indicated its intention of restricting the scope of that general right where it overlaps into the field of dental surgery, and therefore the court must hold that physicians and surgeons have no right to practice dentistry except as permitted by the provisions of the act. The court thinks this is a reasonable construction of the legislation and is consistent with the obvious policy of the legislature to make the practice of dentistry a distinct profession.

Validity of Proceedings and Law Against Advertiser

(State Board of Medical Examiners vs. Macy (Wash.), 159 Pac. R. 801)

The Supreme Court of Washington affirms a judgment of the superior court which affirmed a decision of the state board of medical examiners revoking the license of the defendant, an osteopath. The court holds that where there is nothing in the record before it indicating that the sufficiency of the complaint was in any manner challenged before the state board of medical examiners or in the superior court, so that it must be concluded that its sufficiency is challenged in the supreme court for the first time, this fact calls for a most liberal construction of its allegations looking to the sustaining of the judgment, even if the proceedings should be regarded as purely judicial. It seems to be well settled by the authorities, however, that proceedings of this nature are not purely judicial, in the sense that they must be attended by the strict rules of pleadings and procedure incident to actions at law. The complaint here, after charging that the defendant "advertised his medical business" in certain named newspapers in Seattle and Tacoma on certain specified dates, charged: "That such advertising of his medical business was intended and has a tendency to deceive the public and impose upon credulous and ignorant persons and so be harmful and injurious to public morals or safety. That such advertisements consist in part in advertising of medicine or of means whereby the monthly periods of women can be regulated, or the menses reestablished if suppressed." This quoted portion of the complaint followed in substance the language of Subdivisions 3 and 4 of section 8397½, Rem & Bal. Code, defining unprofessional conduct for which the licenses of osteopaths and other physicians may be revoked by the state board of medical examiners. It was argued that the complaint was defective in that it did not set out or describe with sufficient certainty the advertisements charged as the unprofessional conduct on the part of the defendant. It might well be argued that this, in any event, would only entitle the defendant to have the complaint against him made more specific and certain or that he be furnished a bill of particulars before trial, and that, having proceeded to trial before the state board of medical examiners without insisting on this right, it was waived. However that may be, when the case was pending on appeal in the superior court, a stipulation was entered into between counsel on both sides that certain specified advertisements, copies thereof being made a part of the stipulation, which appeared on their face to have been published by the defendant in certain named Seattle and Tacoma newspapers, might be introduced in evidence on the trial in the superior court, subject only to objections as to their competency and materiality. This stipulation, the record made it apparent, served all the purposes of a bill of particulars, and advised the defendant of the specific charge against him as much as any language of the complaint, standing alone, could possibly have done. It seems quite clear to the supreme court that he cannot now complain of the insufficiency of the complaint, and that in no event can the complaint be said to be so defective as to be insufficient to support the judgment. Among the seven definitions of acts declared to constitute unprofessional conduct for which a practitioner's license may be revoked, found in said section 8397½, is the following: "Third. All advertising of medical business which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public morals or safety." This court is constrained to adopt the view that this definition of unprofessional conduct is not void or unconstitutional because of its vagueness or uncertainty, in harmony with what the court regards as the weight of authority and better reason, in view of the fact that this is not a criminal statute, enacted with any purpose of imposing penalties as such. Much less can the fourth subdivision, with reference to advertising medicine or means for regulating or reestablishing the menses, be said to be unconstitutional. Nor had the defendant any constitutional right to a trial by jury in this case.

Court Going to Hospital to Take Testimony

(State vs. Tracy (N. Dak.), 158 N. W. R. 1069)

The Supreme Court of North Dakota affirms an order denying the defendant a new trial after he had been convicted of the crime of assault and battery with intent to commit rape, in a case in which the testimony of the complaining witness was taken at a hospital in which she was confined at the time of the trial on account of an operation for appendicitis, which had been performed on her four or five days prior thereto. The court holds that taking the testimony of a witness in a criminal action at a hospital in the county seat in which the trial is being conducted, to which the presiding judge, jurors, court officials, state's attorney, and the defendant and his attorney go for that purpose, against the defendant's objection, does not deprive the court of jurisdiction or nullify the judgment, and it cannot be said that any substantial right of the defendant has been affected, unless it is shown that the trial court abused its discretion to the prejudice of the defendant.

Social Medicine, Medical Economics and Miscellany

THE FRAMINGHAM EXPERIMENT

An Organized Effort at Community Control of Disease

What is the value of our accumulated knowledge on the prevention of disease when applied under the most favorable circumstances? To what extent can disease be prevented, in a modern industrial community, when all available knowledge and resources are utilized? Through the liberality of the Metropolitan Life Insurance Company, which contributed $100,000 for a community laboratory experiment, an effort is being made to determine, in a typical American community, whether it is possible to ascertain with some degree of definiteness just what social and economic factors are responsible for disease and what methods are most effective in securing an adjustment of social forces by which disease may be controlled and prevented. This problem has been studied elsewhere in a limited way. The conversion of a selected community into a laboratory for the study of public health problems in their broadest aspects and for the organization and coordination of all available forces for united effort in disease prevention constitute an experiment which is novel, interesting and capable of being of great value in the development of community public health methods.

The National Association for the Study and Prevention of Tuberculosis announced in its press bulletin in November that Framingham, Mass., had been selected as the town in which to make the community health demonstration for a period of three years. Framingham was selected because Massachusetts has a good department of health, because the town contained various types of industries and various races of people; because the town had a good local health organization, progressive city officials, good educational and relief organizations, good hospitals, and well trained physicians; because the town itself, both officially and through its individual citizens, was willing to cooperate and to meet its own obligations; because health conditions in the town were average and typical, and because Framingham itself desired to advance in health work. A committee made up of representatives of the National Association for the Study and Prevention of Tuberculosis, the Metropolitan Life Insurance Company, the U. S. Public Health Service, the Massachusetts State Department of Health, and tuberculosis associations in Massachusetts, New York, Connecticut and Pennsylvania was appointed to have charge of the work. Dr. Donald B. Armstrong, formerly connected with the work of the Association for Improving the Condition of the Poor of New York City, was selected as the director of the experiment. The plans made include the following items:

1. The establishment of an office, the appointment of a local committee, the introduction of the program to all the organizations and people in Framingham.
2. Complete care for known cases of tuberculosis.
3. The early discovery of unknown advanced cases.
4. A thorough knowledge of the whole town, including sanitary conditions, factory conditions, school conditions, commercial and office conditions and rural conditions.
5. Tuberculosis lectures and clinics by the country's most famous experts, for local physicians, emphasizing uniform and efficient work, and showing the way to the rest of the state and country for the use of the best methods of diagnosis and treatment.
6. The coordination of Framingham health activities, including the work of the demonstration committee, school health work, factory health work, the work of the board of health, infant health work and charitable relief.
7. The coordination and expansion of Framingham medical facilities, including laboratory, dispensary and hospital, with the establishment of necessary connections with outside medical agencies, such as the state and country sanatoriums, the Boston medical schools, etc.
8. An educational campaign carried on through general public channels, school and factory, etc., aimed at the detection and prevention of early cases of tuberculosis, the prevention of infection, and the creation of healthful conditions and thorough annual medical examinations for every one.
9. The thorough medical examination of all Framingham citizens who are willing to go to their physician or to the dispensary for this purpose.
10. Home care, with adequate nursing and medical facilities for tuberculosis cases. Hospital care, in state or county institutions, will be recommended and provided for in some way when necessary.

Discussing this program and the best methods of carrying it out, Dr. Armstrong said recently[1] that it was essential for the complete and successful use of available community agencies that mutually beneficial and cooperative relations be established with the health and medical representatives in Framingham. On the side of health and nursing, the problem presented no difficulty. The local health organization can meet the routine health and nursing needs. "But," says Dr. Armstrong, "in Framingham, as probably would be the case elsewhere, the problems of medical organization are most fundamental and at the same time most difficult. The success of many phases of the problem, including thorough medical examinations, the detection of early cases of disease, etc., depends on the sympathy and help of the members of the medical profession. Their criticism and approval of numerous steps must be had. Uniform diagnostic standards and methods for the examination and classification of disease are essential to the scientific value of the demonstration. . . . Medical work must be done through the practicing physician in such a way as not to interfere with normal medical procedure. . . . A local organized medical efficiency is necessary to meet these ends. . . . If the campaign to urge people to go to their doctors for thorough medical examinations is a success, here again the intelligent cooperation of the Framingham physicians will be needed."

What is to be expected of the town itself? Here again definite plans have been formulated. The following synopsis shows what Framingham is expected to do:

1. If the demonstration is to be a success, it must have the earnest cooperation of the Framingham physicians in the detection and reporting of tuberculosis cases, in the making of thorough medical examinations, etc. This will mean a considerable burden of work for the physicians, and for that reason will have to be paid for by the Framingham people themselves, sick or well, if possible, or by local charitable agencies and the demonstration committee's special fund for this purpose.
2. The demonstration must have the help and good will of Framingham town officials, private agencies, private citizens, factory owners, newspapers, etc.
3. The help of the antituberculosis society is essential, and all should be willing to follow completely the advice and treatment recommendations of their physicians.
4. Finally, Framingham should continue to meet its natural and normal town health obligations. These may be outlined as follows, and concerning them, assurances have been given the committee that most or all of them will be met either from the town funds or from funds to be provided by private organizations:
   (*a*) The maintenance of a health office with a full-time officer and public health laboratory.
   (*b*) A tuberculosis dispensary and full-time tuberculosis nurse.
   (*c*) Medical school inspection, a full-time school nurse, and, if possible, a full-time school physician.
   (*d*) An infant welfare clinic and at least a part-time infant welfare nurse.
   (*e*) A district visiting nurse, the expense to be met in part at least by the Visiting Nurse Association, Metropolitan Life Insurance Company, assisted by the nurses at the hospital.
   (*f*) The efficient coordination of charitable agencies.
   (*g*) Open-air rooms in the schools and possibly a dental clinic.
   (*h*) The cooperation of as many people as possible in making successful the campaign for thorough annual medical examinations.
   (*i*) Full cooperation in the use of the old school building now used by the department of health as an isolation pavilion, as a temporary place for certain types of cases, if necessary, pending the completion of the county's hospital, particularly for patients who cannot wisely be cared for at home, owing to the exposure to infection of infants and children; the expense to be met jointly by the demonstration committee and the hospital.
   (*j*) The cooperation with the committee in the use, if necessary, of another old school building to be used as a preventorium for children.
   (*k*) Willingness on the part of patients to follow advice and treatment of their physicians.

Finally, what results are to be expected from this impressive and carefully planned experiment in municipal disease prevention? As formulated by the committee, they are:

1. The discovery and adequate care of all cases of tuberculosis, the reduction of sickness and deaths to a minimum.
2. The general health and sanitary improvement of all of Framingham and its population, and the prevention of other diseases as well, resulting in a reduction in the general death rate from all causes.
3. The demonstration of the belief that disease prevention for any town is cheaper than disease, both to the town and to the sick person.
4. The making of Framingham the world's healthiest spot and hygienic Utopia.
5. The spending locally of $100,000 or more.

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1. Armstrong, D. B.: Framingham Health and Tuberculosis Demonstration, Boston Med. and Surg. Jour., 1917, **176**, 206.

6. The transformation of Framingham into the healthiest and safest place to trade and the safest town from which to advertise manufactured products—a substantial asset.
7. Fame for Framingham—the eyes of the medical, health, scientific and popular worlds are on her.
8. The working out, at the end of the experiment, of the best health and disease preventive machinery for a town of Framingham's size.
9. The demonstration of the cheapest and most efficient method for the prevention of tuberculosis—a plan for other towns the world over to copy.
10. The answer to the questions: Are we spending our money wisely? What methods in disease prevention are worth while?
11. The successful demonstration of a worthy program for the conquest of tuberculosis and for the enthronement of health.

The Framingham experiment will be followed by those interested in disease prevention and the conservation of human life. While it may not be determinative in its results, as far as other communities are concerned, it will at least give an opportunity for the testing of many theories and the working out of exact methods for disease control. Whether or not all the expected results are realized, the three year demonstration cannot fail to be a stimulus to the people of Framingham in securing better living conditions which will be an example for other cities to follow.

Children's Code and Its Enforcement

A commission recommended by the State Committee for Social Legislation and a number of other agencies interested in child welfare, appointed by the governor of Missouri to complete a code of laws for the welfare of children, has recently made its report. The report covers the subjects of statistics and social conditions, public administration, delinquents, defectives, destitute and neglected children, child labor, health and recreation, and education. The commission recommends: (1) the establishment of a board of public welfare in every county; (2) the creation of a children's court in every county as part of the circuit court, with provisions for a referee for the immediate hearing of children's cases in the absence of the judge of the circuit court; (3) statewide provisions for mothers' pensions; (4) a complete revolution in the status of illegitimate children, giving them practically the right of legitimate children; (5) state supervision of all private agencies caring for children; (6) the placing of all institutions for defectives and delinquents under the state department of education; (7) the providing of special classes in the schools for all types of defective children; (8) requiring children to complete the sixth grade in school unless the child has reached the age of 16.

Society Proceedings

COMING MEETINGS

American Medical Association, New York, June 4-8.

Alabama State Medical Association, Montgomery, April 17-20.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Urological Association, Chicago, April 2-4.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
Tennessee State Medical Association, Nashville, April 3-5.
Texas State Medical Association, Dallas, May 8-10.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Feb. 28, 1917

The President, Dr. Henry D. Jump, in the Chair

SYMPOSIUM ON BACKACHE

Backache as Viewed by the Internist

Dr. Joseph Sailer: There are few diseases in which backache may not occur. The first step in diagnosis is a careful history and a description of the pain. Exceedingly important is the question of the association of pain in other parts of the body. The patient will usually understate rather than overstate the duration of pain. The patient should remove all clothing, and often the presence of an eruption will determine the nature of the condition. This is particularly true of herpes zoster. Next in importance to the inspection of the back is the use of the Roentgen ray by which it is possible *to detect disease of the spinal column,* and also disease in *situations other than the back, yet causing backache. In the* occipital region, pain may be caused by suboccipital neuritis, brain tumor, especially cerebellar; meningitis, disease of the sphenopalatine ganglion, eyestrain, or ear disease. Frequently pain in the occipital region is associated with infectious disease. The pain which occurs in the shoulder girdle is sometimes very severe, and is due to a great variety of causes: disease of the cervical or upper dorsal spine, tumor of the spinal cord, aortic disease, brain tumor or meningitis. Pain in the shoulders is sometimes unilateral. It may occur in either shoulder in brachial neuritis, in intercostal neuritis, in diaphragmatic pleurisy, in disease of the lungs and pleura, particularly in the neighborhood of the apex, and is common in subclavian aneurysm, in bursitis and in osteomyelitis of the shoulder. On the right side pain occurs in the shoulder in disease of the gallbladder and sometimes in disease of the liver; on the left side in pylorospasm, ulcer of the stomach, aneurysm of the descending aorta and in diaphragmatic hernia. Among the most important causes of pain in the dorsal region of the spinal cord are secondary malignant tumors of the spine, osteosarcoma and esophageal disease. In the lumbar region, pain may be due to abdominal aneurysm, lumbar abscess (psoas), anemia, pregnancy, retroperitoneal sarcoma, bladder and rectal disease, uterine and ovarian disease and to constipation. Pain is also present in postoperative conditions sometimes due to faulty position on the table.

Backache from an Orthopedic Standpoint

Dr. Gwilym G. Davis: Of orthopedic conditions causing backache all may be included under "traumatism": actual blows, muscular strains, sprains of the joints, and strains due to static changes involving disturbances of the body balance due to weakness, etc., of the lower extremities. While actual blows seldom cause backache, there must be borne in mind *the possibility of such injury being the starting point* of tuberculosis. Roentgen-ray examination is here indicated. In obscure cases the patient should be examined to ascertain whether there are serious deformities of the limbs and whether the feet are properly shod. Persons suffering from habitual constipation are especially liable to backache. Among other sources of backache may be mentioned disease of the kidneys and uterus and malignant disease of the spine. No matter what the cause of the backache, a certain amount of support is usually of service, but curative only when the cause is local. The general condition must receive attention. Massage and exercises are to be avoided in ostearthritic conditions. People who are generally miserable and run down are apt to attribute their troubles to the back; in such patients hygienic in addition to supporting measures are required. There is scarcely a single measure to which a physician can resort in these painful backs which will be of more practical service than some form of support.

Gynecologic Aspects of Backache

Dr. Catharine Macfarlane: In 16 per cent. of 983 gynecologic cases backache was mentioned as a prominent symptom. The pelvic findings of these 159 cases comprised chiefly lacerations, retroversions, prolapse and inflammatory conditions, such as adherent appendages and endocervicitis. The incidence of marked nervousness in these 159 patients with backache was about 9.5 per cent., or about equal to the incidence of adherent appendages, and half as frequent as that of prolapsus uteri. It would seem that the neurasthenic state predisposes to backache of pelvic origin by lowering the resistance of the central nervous system. The fact that the backache in many of the reported cases was permanently relieved by appropriate gynecologic treatment compelled belief that these backaches were caused by the pelvic condition. The mode of production of backache is explained by the theory of referred pain. The diagnostic features of pelvic backache are that the pain is sacral or lumbosacral, is apt to be aggravated by the menstrual period, and is usually associated with objective symptoms of pelvic disease. Neurotic patients with purely subjective symptoms must be handled with great care, and caution exercised to avoid unduly emphasizing some trifling gynecologic condition which might merely coexist.

Backache as Seen by the Neurologist

Dr. M. H. Bochroch: It is impossible to make a definite or clear cut diagnosis of a spinal affection, either of functional or organic disease, from pains in the back. Neither the location, character nor intensity of the pains will justify it. They are merely the sign posts which point the way for deeper investigation. In conjunction with pains in the back there must be a searching history of the case in all its phases, and a separation and intelligent interpretation of the objective from the subjective symptoms.

DISCUSSION ON BACKACHE

Dr. Harry Hudson: Constipation as a cause of backache deserves more than passing mention. In the Samaritan Hospital we have frequently seen cases of supposed back trouble in which there is packing of the colon. Following purging, the Roentgen ray has shown that the persistence of the back pain was due to the fact that the colon had not been evacuated. Spinal curvatures, and strains of the static type are frequently overlooked as causes of pain in the occipital region. In my rather limited experience I do not think I have seen more than one or two cases of painful back due to Bright's disease. It is interesting to note that in the first examination of patients we may find the muscles on one side rigid, and on the other relaxed, and on subsequent examinations, possibly both sides rigid, or the muscular tension transferred to another portion of the back, although the pain remains in the same position. Certain conditions of muscular strain cause painful backs which are not yet explained.

Dr. J. T. Rugh: In myositis as a cause of pain in the back the hypodermic injection of hot salt solution, particularly into the body of the muscles, gives remarkable relief. In men in whom backache is relieved after a bowel movement, examination should be made of the seminal vesicles and prostate gland for infection. The Roentgen ray has shown a congenital malformation of the fifth lumbar vertebra in cases of backache occurring among laborers forced to flex the spine in their work. In fact, roentgenologists assert that it is unusual to find a normal fifth lumbar vertebra in these cases, and removal of the process of the fifth lumbar vertebra is being done by orthopedic surgeons with remarkable results in the cure of these cases.

Dr. William R. Nicholson: The reference to lack of pain in retroversions of the uterus would, I think, be better stated by saying that in nulliparous women without adnexal disease, immovable retrodisplacement caused pain only in rare instances. In multiparous women, pain is present under these conditions.

Dr. A. Bruce Gill: One is apt to be confused by the multiplicity of conditions that may cause pain in the back. They may be divided into: (1) diseases of the spinal column; (2) referred pain, and (3) mechanical causes. The mechanical causes are most often operative. Few people grow to adult life with perfect backs, and the spinal column should be examined from the mechanical point of view. Acute sprain of the back involving only the muscles is relieved by massage; the deep injuries are made worse, which is an important diagnostic feature. In the early treatment of backache, supportive measures may be advisable, with the subsequent employment of exercise, manipulations and gymnastics.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

March, XV, No. 3

1 *Relation of Blood Supply to Longitudinal Growth of Bone. S. L. Haas, San Francisco.—p. 157. To be concluded.
2 Scoliosis. E. G. Abbott, Portland, Me.—p. 172.
3 Analysis of Seventy-Five Cases of Tuberculosis of Spine in Adult. M. H. Rogers, Boston and T. M. Foley, Washington, D. C.—p. 208.
4 *Isolated Disease of Scaphoid Bone of Foot (Köhler's Disease); Report of Case. W. B. Hetzel, Pittsburgh.—p. 214.

1. **Blood Supply and Bone Growth.**—In order better to appreciate the effects of the various operative procedures and to emphasize the importance of the blood supply to bone, a detailed description and diagram of the direct blood supply to the metacarpal and metatarsal bones, as determined from the dissection of several injected specimens of the dog's foot, are given by Haas. In none of the five experiments, varying in length from twelve to fifty-nine days, is there any disturbance in growth following an incision down to the metacarpal or metatarsal bones. In only one of nine experiments was there any hindrance in the growth of the bone, when the incision extended down to the bones, with the separation of the overlying tissue. In a series of eleven experiments there was a very slight disturbance in growth after the ligation of the vessels on the dorsal surface of the foot. Cutting tissues from about the entire epiphyseal end of the metacarpal or metatarsal bone showed in six of the seven experiments that there is an appreciable loss of growth in the bone. There is not a complete cessation of growth, as a certain amount of blood enters from the diaphyseal end of the bone. In some instances there were gross changes visible in the region of the epiphyseal cartilage line. There was a greater disturbance in growth following the separation of the tissues from about the distal two-thirds than when only the tissues about the epiphysis are separated. In some of the experiments there was a complete cessation of growth. (To be concluded.)

4. **Köhler's Disease.**—No history of any injury could be elicited in Hetzel's case. Of the nine other cases reported, trauma was absent in four, and in two others was questionable or very slight. The von Pirquet reaction was negative, nor was there evidence of the disease in any organs. The Wassermann test was negative. No bacteriologic or microscopic studies have been possible because no operations have been performed, the condition being cured spontaneously. The treatment is rest and support.

American Journal of Physiology, Baltimore

March, XLII, No. 4

5 Physiology of Atrioventricular Connection in Turtle. Irritability and Rhythm Formation. H. Laurens, New Haven, Conn.—p. 513.
6 *Bile Pigment Metabolism. Bile Pigment Output Influenced by Eck Fistula. G. H. Whipple and C. W. Hooper, San Francisco.—p. 544.
7 *Origin of Proteolytic Ferments. Character of Certain Ferments. L. H. Sloan, Chicago.—p. 558.
8 *Influence of Partial Thyroidectomy in Pigs. C. C. Palmer, St. Paul, Minn.—p. 572.

6. **Eck Fistula and Bile Pigment Output.**—An Eck fistula, Whipple and Hooper show, allows the portal blood to pass directly into the vena cava and excludes it from the liver. The Eck fistula liver is atrophic with central fatty degeneration, and shows evidence of subnormal functional capacity. The Eck fistula liver secretes much less bile pigment than the normal liver—one-third to three-fourths of normal or even less. Splenectomy added to the combined bile and Eck fistula does not essentially modify the result. Simple bile fistula and the combined bile and Eck fistula dogs show the same histologic picture in the hematopoietic system. This means that bile pigment formation is in part dependent on liver function—in other words, not solely dependent on red cell disintegration. It is at least possible that the production

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of other body pigments (that is, hemoglobin) may depend in part on the constructive capacity of the liver.

7. **Origin of Proteolytic Ferments of Blood.**—According to Sloan, normal blood serum contains a weak proteolytic ferment which carries digestion to the amino-acid stage. The concentration of this ferment is not constant. There is an increased proteolytic ferment action of serum during pregnancy as shown by the dialysis method of Abderhalden. This cannot be detected by the Van Slyke method. The injection of placental suspension does not give rise to an increased production or mobilization of ferments when tested by the dialysis method or the Van Slyke method. The injection of the split products of pepsin-trypsin digestion of human placenta gives rise to an increase in the ferments. This increase can be shown by the dialysis method but not by means of the Van Slyke method. The theory underlying the Abderhalden reaction as advanced by Abderhalden does not explain the increase in ferments found during pregnancy. The basis of the theory would seem to be the entrance of split products of placental hydrolysis rather than of chorionic villi and cells. The Van Slyke method is not applicable to determinations of the above character in which a nonsoluble, moist, complex, protein substance is incubated with serum in a test tube but without dialysis.

8. **Partial Thyroidectomy in Pigs.**—The work reported on by Palmer was undertaken with the view of determining if cretinism can be produced. He found that extirpation of the main thyroid in young pigs does not induce cretinism, at least within a period of nearly one year. There is a slight retardation in growth, but the pigs operated on act similar to the controls, except that they show a marked lowered resistance to infection. Postmortem examination of the thyroidectomized pigs revealed a marked hypertrophy of the accessory thyroid tissue. The main thyroid plays an important part in the normal body resistance to infection and when this structure is removed the accessory thyroids cannot completely compensate. In pigs a degree of hypothyroidism, not sufficient to lead to marked changes in physical appearance of the animal, lowers the resistance to infection to quite a degree, and impairs the functions of reproduction.

Boston Medical and Surgical Journal

March 8, CLXXVI, No. 10

9 *Results of Treatments for Fractures of Carpal Bones. H. W. Marshall, Boston.—p. 333.
10 Inebriety and How To Control It. I. H. Neff, Norfolk.—p. 337.
11 Intrathoracic Goiter. F. H. Lahey, Boston.—p. 341.
12 Suppurative Labyrinthitis; Critical Review of Its Diagnosis and Treatment. A. B. Duel, New York.—p. 345.
13 Paravertebral Anesthesia; Report of Fifty Cases. F. C. W. Konrad, Boston.—p. 351.
14 *Large Ovarian Tumor. F. A. Pemberton.—p. 354.
15 Case of Aspermia. Successfully Treated with Dried Suprarenal Cortex. S. W. Little, Rochester, N. Y.—p. 355.
16 Case of Congenital Dislocation of Shoulder Joint. F. E. Peckham, Providence, R. I.—p. 355.
17 Treatment of Pain and Distress in Digestive Disorders. A. E. Austin, Boston.—p. 357.

March 15, No. 11

18 Study of Problem of So-Called Defective Delinquent and What Has Been Done in Massachusetts. L. V. Briggs, Boston.—p. 371.
19 What Massachusetts Is Doing for Syphilitic at State Infirmary at Tewksbury. O. M. Lewis, Boston.—p. 380.
20 *Vasomotor Unrest in Insane. C. J. Enebuske, Sater, Sweden.—p. 385.
21 Pulmonary Syphilis; Report of Probable Case. C. Phipps, Boston.—p. 390.

9. **Treatments for Fractures of Carpal Bones.**—Eighty-one cases are analyzed by Marshall. Among these there were sixty-four cases of simple fracture of the scaphoid, three cases of fracture of scaphoid with fracture of styloid process of radius, and five cases of fracture of scaphoid with dislocation of semilunar. The results from treatment of these cases indicate that early fractures of scaphoid bones without displacement of fragments should be protected for a short time, one to four weeks, then passive and active movements gradually resumed until painful symptoms subside. Such early fractures resulting from slight injuries should not be operated on, because many wrists regain good function with very little medical care. Old ununited fractures of scaphoid bones, without displacement of fragments, however, should be operated on if soreness persists for a long period, or recurs frequently enough to cause serious disability. The length of time which should be allowed to elapse between injury and time of operation differs widely according to different occupations, different degrees of initial injuries, and varying constitutional conditions of patients. Fractures with accompanying irreducible dislocations of semilunar bones should be operated on soon. Perfect restorations of wrist motions after operations appear to be rare, but fairly serviceable wrists ultimately should be expected.

14. **Large Ovarian Tumor.**—Pemberton cites a case in which the tumor and its contents weighed 72 pounds. Pathologically it was a unilocular pseudomucinous cyst adenoma lined by a single layer of high cylindric cells and showing no papillary hypertrophies growing from the epithelium. Only three cases of larger cysts which have been successfully removed are recorded in the literature.

20. **Vasomotor Unrest in Insane.**—These studies are based on 20,000 measurements of the tension of the radial pulse in 250 cases of various forms of insanity. According to Enebuske vasomotor unrest is a common occurrence in the insane, but his observations regarding the vasomotor unrest in the insane do not furnish reasons enough to call for any declaration of opinion regarding the causes and origin of insanity. Characteristic of the manodepressive group is vasomotor unrest at hypertension level, continuous within certain periods of time. That is to say, that the blood pressure in radialis is subject to frequent alterations between higher and lower values about a middle value which always is higher than 150 mm. Hg. This alterability ceases after a period of time, briefer or more prolonged, as the case may be. When the vasomotor unrest ceases, vasomotor tranquillity sets in. Whenever this occurs, the disease has either run its course or is altered. The tension of the radial pulse in the praecox group is characterized by continuous vasomotor unrest at hypertension, hypotension, or middle level. The blood pressure in praecox presents by far more numerous variations than in the manodepressive group. In the manodepressive group, the psychic symptoms having run their course, when remission has entered or health is restored, the vasomotor unrest subsides spontaneously and vasomotor tranquillity at normal blood pressure manifests itself. In the praecox group, on the contrary, the vasomotor unrest is continuous without time limit through periods of remission with vasomotor tranquillity (exception for periodical praecox). In all these forms of insanity is found vasomotor unrest at different blood pressure levels during the acute and subacute stages. During periods of a relatively more tranquil vasomotor condition, the receptivity and responsiveness of the insane to psychotherapy and pedagogic influence (working therapy, etc.) is markedly increased in a majority of the cases observed.

California State Journal of Medicine, San Francisco

March, XV, No. 3

22 Animal Experimentation and Medical Progress. G. H. Whipple, San Francisco.—p. 68.
23 *Report of Fifty Cases of Tuberculosis of Kidney and Bladder Clinically Cured without Operation. F. S. Dillingham, Los Angeles.—p. 70.
24 Limitations of Roentgenology in Tumors of Kidney. A. Soiland, Los Angeles.—p. 73.
25 Treatment of Syphilis. G. MacGowan, Los Angeles.—p. 73.
26 Stenosis of Duodenum; Report of Cases. P. S. Campiche, San Francisco.—p. 76.

23. **Tuberculosis of Kidney and Bladder Clinically Cured without Operation.**—This report by Dillingham is made of patients who have presented themselves with both sides infected or who absolutely refused to be operated. Dillingham says that with the best hygienic care, compatible with the patients' occupations, cautioning them not to overdo physically, using extreme gentleness in the care of the cystitis and with small doses of tuberculin regularly given and carefully increased, not necessarily to the highest point of toleration for the individual patient, but to the point of greatest clinical gain, a great many who refuse to be operated on, or who come with both sides infected, may be relieved, and possibly cured,

and certainly may be made more comfortable. Of these fifty patients, 90 per cent. have been able to keep at their work during the course of treatment or were able to return within a very few weeks. Two patients developed tuberculous epididymitis in the course of their treatment. Great care was taken not to get a reaction with the tuberculin. In the average case 1/75,000 mg. was given twice a week and so gradually increased that there was never a local or general reaction. In those cases, complicated by lung infections, this initial dose was reduced to 1/750,000 mg. As a guide for increasing the dose in the majority of the cases, Dillingham relied on the following: a feeling of well-being and less of the tired feeling, increase in weight and appetite, improvement as to frequency either day or night, or both. Along with careful diet and hygienic measures, Dillingham is a firm believer in the use of silver nitrate for bladder irrigations, beginning with a pint of a 1/60,000 solution in distilled water, the rule being not to cause irritation either from the strength of the silver or the rapidity of its injection. In increasing the strength of the silver, which is done as rapidly as possible, the bladder should never burn.

Cleveland Medical Journal

January, XVI, No. 1

27 Interpretation of Stereoroentgenograms of Mastoid. J. M. Ingersoll, Cleveland.—p. 1.
28 Psychoneurosis—Emotionalism as Genetic Factor. H. H. Drysdale, Cleveland.—p. 5.
29 Conservative Surgery in Splenomegaly; Report of Cases. A. Peskind, Cleveland.—p. 16.
30 Pneumoliths; Report of Cases. L. E. Brown, Akron.—p. 21.
31 Importance of Enlarged Rectal Valves in Causing Autotoxemia. W. M. Gregory, Berea.—p. 26.

Florida Medical Association Journal, Jacksonville

February, III, No. 8

32 Valvular Lesions in Aged. G. E. Henson, Jacksonville.—p. 225.
33 Senile *Bronchitis*. H. L. Merryday, Daytona.—p. 229.
34 Effects of Senility on Kidney. L. B. Bouchelle, New Smyrna.—p. 229.
35 Management of Senile Debility. J. Reeve, Deland.—p. 230.
36 Urinary Troubles of Aged. H. K. DuBois, Port Orange.—p. 231.
37 Diet in Senility. W. C. Chowning, New Smyrna.—p. 232.
38 Degenerative and Vascular Changes of Aged—Arteriosclerosis and Atheroma. J. E. McGunagle, Daytona.—p. 233.
39 "Indigestion." G. M. Niles, Atlanta, Ga.—p. 234.
40 Colle's Fractures. J. S. McEwan, Orland.—p. 237.
41 Diabetes Mellitus. D. W. McMillan, Pensacola.—p. 238.

Journal of Infectious Diseases, Chicago

March, XX, No. 3

42 *Hypersensitiveness to Tuberculin as Determined by Intracutaneous Injection of Different Dosages. M. S. Cohen, Philadelphia.—p. 233.
43 Virulence and Toxin Formation in B. Diphtheriae. W. E. Cary, Chicago.—p. 244.
44 *Germicidal Action and Specific Bacteriotropism of Quinin and Urea Hydrochlorid, Ethylhydrocuprein and Other Cinchona Derivatives on Pneumococci in Vitro. S. S. Cohen, J. A. Kolmer and G. D. Heist, Philadelphia.—p. 272.
45 Various Methods of Determining Bactericidal Action of Substances in Vitro and Their Relation to Chemotherapy of Bacterial Infections. J. A. Kolmer, S. S. Cohen and G. D. Heist, Philadelphia.—p. 293.
46 *Protective and Curative Value of Quinin and Urea Hydrochlorid, Ethylhydrocuprein, and Other Cinchona Derivatives in Experimental Pneumococcus Infections. S. S. Cohen, J. A. Kolmer and G. D. Heist, Philadelphia.—p. 313.
47 *Influence of Quinin and Urea Hydrochlorid, Ethylhydrocuprein, and Other Cinchona Derivatives on Leukocytosis and on Phagocytosis of Pneumococci in Vitro. J. A. Kolmer, S. S. Cohen and E. Steinfield, Philadelphia.—p. 333.
48 *Allergic Skin Reactions in Pneumonia to Type Strains of Pneumococci. E. Steinfield and J. A. Kolmer, Philadelphia.—p. 344.

42. **Hypersensitiveness to Tuberculin.**—This phenomenon was studied by Cohen in 28 patients. The character of the response varied. An areola alone was noted in 12 patients and 17 tests; induration alone in 4 patients and 5 tests; a papule alone in 4 patients and 5 tests; areola and induration together in 14 patients and 34 tests; areola and papule in 19 patients and 37 tests; induration and papule in 2 patients and 3 tests; and areola, induration, and papule in 17 patients and 48 tests. Only when induration or a papule was present was the response regarded as a true reaction. The patients varied greatly in their degree of hypersensitiveness, one patient reacting to one ten-millionth of a milligram, and another only to ten milligrams. Six patients reacted to one ten-millionth of a milligram, 2 patients to one millionth of a milligram, 7 to one one-hundred-thousandth of a milligram, 2 to one ten-thousandth of a milligram, 1 to one thousandth of a milligram, 1 to one hundredth of a milligram, 3 to one tenth of a milligram, 2 to one milligram, and 1 to ten milligrams. Great irregularity was shown in the reactions. Only 12 of the 28 reacted to all the doses of tuberculin above the one that caused the minimal reaction. Fifteen patients were again tested from two and one-fourth to five and one-half months after the degree of hypersensitiveness had been first determined. Five reacted in about the same manner as before. Four reacted to 10 times the previous minimal reaction dose, 3 to 100 times it, 1 to more than 100 times it, and 1 to 1,000 times it, while 1 reacted to one hundredth of it. Tuberculin hypersensitiveness seems to correspond with tuberculin tolerance. The appropriate therapeutic dose as determined by intracutaneous injection is approximated clinically by increasing the dose until a favorable systemic reaction is produced, then maintaining the dose producing this until it no longer produces such reaction, and then again increasing it. The therapeutic value of tuberculin, properly administered, can be seen in the accompanying decrease in hypersensitiveness.

44. **Action of Quinin, etc., on Pneumococci.**—This report is confined to certain preliminary studies concerning the germicidal action of quinin, its compounds, and its congeners, especially their action on pneumococci. Besides ethylhydrocuprein and methylhydrocuprein and their respective hydrochlorids, the chemicals chosen for study were the alkaloid quinin and its monobasic and dibasic salts with hydrochloric, hydrobromic, and sulphuric acids; its salicylate, lactate, arsenate, valerianate, and tannate; and the double salt of hydrochloric acid with quinin and urea. Types I, II and III of the pneumococcus were selected as the micro-organisms for investigation. With the centrifugation method the various salts of quinin proved bactericidal for all types in dilution of about 1:100 (least active 1:80; most active 1:200). Methylhydrocuprein hydrochlorid had about the same germicidal value as the quinin compounds. The compound of quinin and urea hydrochlorid was slightly more active than the other quinin compounds against Type II (1:200) and Type III (1:150). Ethylhydrocuprein hydrochlorid, however, proved 3.5 to 8 times as active as the most active of the quinin salts (bactericidal in dilution of 1:700 and 1:800). Cross bactericidal tests—employing, on the one hand, quinin and ethylhydrocuprein, with cultures of *B. typhosus* and of a staphylococcus, and on the other hand, arsenobenzol, phenol, mercuric chlorid, sodium salicylate and other substances, with cultures of pneumococci, show that the cinchona derivatives possess a high degree of specific pneumococcidal activity. The pneumococcidal activity of ethylhydrocuprein hydrochlorid was reduced to one-fifth or sometimes one-tenth part in a menstruum of serum, as compared with that shown in normal salt solution. The activity of the majority of the quinin salts tested was, relatively, but slightly reduced in serum. The activity of phenol in serum was reduced to one-half, and that of mercuric chlorid to one-tenth, of their respective values in salt solution.

46. **Chemotherapy of Pneumococcus Infections.**—Although the authors' study shows a real protective and curative value in ethylhydrocuprein in experimental pneumococcus infections, their results demonstrate a somewhat less marked antipneumococcus potency on the part of this drug than has been previously reported. Other cinchona derivatives are shown to possess also a certain degree of protective power in experimental infections. In their opinion ethylhydrocuprein stands today in a position somewhat similar to that of atoxyl in the treatment of experimental trypanosomiasis. The authors emphasize further that in so far as the facts here reported may be considered to bear on the value of quinin compounds in the treatment of pneumonias in man, that the use of these agents as advocated by one of them forms but one element in a therapeutic plan, and that, at least until some more potent pneumococcide in vitro than even ethylhydrocuprein is found,

it is the plan as a whole, and not any single feature only, that is offered for the consideration of practicing physicians.

47. **Action of Quinin, Etc., on Phagocytosis of Pneumococci in Vitro.**—The experiments here reported indicate that probably a part of the curative effect of quinin and urea hydrochlorid, ethylhydrocuprein, and other cinchonics in pneumococcus infections is to be ascribed to their influence on phagocytosis.

48. **Skin Reactions in Pneumonia.**—Allergic reactions were observed by Steinfield and Kolmer in 30 per cent. of a series of cases of lobar pneumonia following the intradermal injection of washed and heat-killed pneumococci. True reactions were not observed among normal persons or those suffering with various chronic diseases, and the presence of pneumococci in the upper air passages during health apparently does not sensitize in so far as this condition is detectable by skin tests. All reactions occurred after the crisis or after the infection had been present over a prolonged period. There was no constant relation between reactions to the protein of various types of pneumococci and the types found in the sputum. It is probable that the allergic reactions to pneumococcus protein are of a more general character than the agglutination reactions.

Laryngoscope, St. Louis

February, XXVII, No. 2

49 Surgery of *Temporomandibular Articulation.* L. W. *Dean and* W. F. *Boiler, Iowa City,* Iowa.—p. 65.
50 Rational Treatment of Stuttering. M. K. Scripture and E. Jackson, New York.—p. 74.
51 Repair of Tympanic Membrane in Perforations of Long Standing. A. M. Dunlap, Shanghai, China.—p. 81.
52 Cerebral Complication of Acute Mastoiditis with Very Sudden Unusual Symptoms. W. T. Patton, New Orleans.—p. 86.
53 Safety-Pin in Larynx; Perilaryngeal Abscess Treated for Diphtheria. H. L. Lynah, New York.—p. 93.
54 *Case of Hemiplegia Occurring Immediately After Tonsillectomy* Under General Anesthesia. W. A. Scruton, New York.—p. 96.
55 Edema of Glottis Following Tonsillectomy. E. L. Myers, St. Louis.—p. 98.
56 Curious Case of Diphtheric Membrane in Lung Simulating Foreign Body, Diagnosed and Removed by Bronchoscope. R. H. Skillern, Philadelphia.—p. 100.
57 New Instrument for Attachment to Suction Apparatus to Maintain Dry Field *in Tonsillectomy* Under General Anesthesia and to Lessen Occurrence of Postoperative Pneumonia. S. Israel, Houston, Texas.—p. 102.

Medical Record, New York

March 10, XCI, No. 10

58 Blood Pressure Test and Its Present Status in Life Insurance Examinations. F. A. Faught, Philadelphia.—p. 399.
59 Massage in Raynaud's Disease (Dry Gangrene). D. Graham, Boston.—p. 402.
60 Subdeltoid Bursitis with Lime Salt Deposit. M. K. Smith, New York.—p. 406.
61 Calcium Salts for Acidity and Associated Disorders. J. Aulde, Philadelphia.—p. 408.
62 Vaccine Treatment of Coryza. H. L. Fifield, Syracuse.—p. 409.
63 Clinical Studies in Hyperthyroidism. L. F. Watson, Chicago.—p. 411.
64 Dont's in Hemorrhage and Blood Diseases. M. Chideckel, Baltimore.—p. 412.

Missouri State Medical Association Journal, St. Louis

March, XIV, No. 3

65 *Recurrent Transient Complete Heart Block. S. Simon and G. C. Robinson, St. Louis.—p. 97.
66 *Treatment of Carcinoma of Mouth. V. P. Blair, St. Louis.—p. 101.
67 *Gangrene of* Extremities; Report of Cases. M. F. Engman, St. Louis.—p. 105.
68 Value *of Early Treatment* of Mental Disorders. F. M. Barnes, Jr., St. Louis.—p. 108.
69 **Trichiniasis; Report of Three Sporadic Cases.* L. H. Hempelmann, St. Louis.—p. 111.
70 Cooperation and Loyalty of Medical Men in Local Communities. M. P. Overholser, Harrisonville.—p. 113.
71 Factors of Safety in Surgery. W. Bartlett, St. Louis.—p. 116.

65. **Transient Complete Heart Block.**—The case reported by Simon and Robinson is an example of functional recovery of the auriculoventricular conduction between attacks of complete heart block. The electrocardiograms showed complete heart block only on one occasion, but the clinical observations and history make it clear that such a condition occurred repeatedly, while records obtained between periods of block revealed but slight depression of the auriculoventricular conduction. Syncopal attacks occurred frequently over a period of two years. Between attacks the cardiac mechanism was practically normal. The authors are of the opinion that the patient probably had an organic lesion affecting the conducting system, not only in junctional tissues, but also in the ventricles. That this damage never led to partial block, but caused apparently a sudden change from the normal beat to complete block is of interest.

66. **Treatment of Carcinoma of Mouth.**—Fifty cases are analyzed by Blair. In thirty-two cases, which included the medium grade, the far advanced and the inoperable, radical cures were done or attempted by one or several operations; five being the most done on one patient before all tissues likely to be infected were removed and repair effected. In all, fifty-three operations were done on these thirty-two patients. Seven died while in the hospital. Of the fifty cases analyzed, four were far advanced and three were inoperable within two months after they had attracted the patient's attention. The majority of them could and should have been recognized at a time when the operative death rate should be almost nil and the cures at least around 70 per cent. Blair emphasizes the fact that carcinoma of the inside of the mouth, now generally regarded as one of the most hopeless forms of disease, is so chiefly on account of largely avoidable procrastination and partly on account of pernicious treatment. When the public is taught the advisability of consulting a physician or a dentist in regard to every localized thickening, discoloration, crack or ulceration that appears within the mouth and which persists for more than a few days; when the physician or dentist consulted will bend his efforts toward making an accurate diagnosis rather than dismissing it as inconsequential or tentatively using various irritants in an attempt to cure it; when patients of cancer age with leukoplakia or other chronic epithelial change are warned of the danger of cancerous degeneration and of the frequently insidious nature of the onset of the change; when surgeons operating on mouth carcinoma will make sufficiently wide local excisions and extensive painstaking regional lymphatic dissections, not curtailing the latter because the cancer is early, but rather making the dissection thorough in the early cases on account of the greater chance of curing them, then, Blair says, will the results of operation for cancer of the inside of the mouth compare favorably with the results obtained in other regions.

69. **Eosinophilia in Trichiniasis.**—The maximum eosinophilia in the three cases reported by Hempelmann, was 46, 40 and 30.4 per cent., respectively, and in like order the lowest polynuclear count was 37.8, 32 and 51.2 per cent., respectively. Mast cells were present in the first two cases, 0.3 and 4 per cent., respectively. Hempelmann advises that trichiniasis must be considered when confronted by an obscure febrile disease. The fact that two of these three patients first consulted oculists under the impression that there was something wrong with the eyes shows how necessary it is for oculists particularly to be familiar with the picture of this disease.

New Jersey Medical Society Journal, Orange

March, XIV, No. 3

72 Cancer. E. Staehlin, Newark.—p. 95.
73 Preparation for Medical Practice. L. *Emerson,* Orange.—p. 99.
74 Ethical *Practice; Its Scope* and Its Limitations. G. E. Harbert, Beverly.—p. 101.
75 Some Lessons of *1916 Mobilization. S. A. Cosgrove,* Jersey City.—p. 104.
76 Unpleasant Postmobilization Meditations. H. B. *Orton,* Newark.—p. 108.
77 Fatal Case of Bichlorid Poisoning from Vaginal Absorption. W. P. Conaway, *Atlantic City.*—p. 110.
78 Acute Lymphatic Leukemia. Developing Forty-Eight Hours After *Minor Surgical Procedure.* F. H. Glazebrook, *Morristown.*—p. 11.

New York Medical Journal

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79 Oral Sepsis. J. M. Anders, Philadelphia.—p. 433.
80 Medical Notes of Early New England. E. E. Corny oklyn.—p. 435.
81 Kidney in Pregnancy. W. E. Parke, *Philadelphia.*
82 Gastric Onset of Pulmonary Tuberculosis. A. Ba—p. 443.

83 Wassermann Paradoxus. D. M. Kaplan, New York.—p. 444.
84 Mental Factors in Etiology of Psychoses. C. Ricksher, Kankakee, Ill.—p. 444.
85 Typhlitis or Chronic Appendicitis. L. H. Levy, New Haven, Conn.—p. 449.
86 Sane and Rational Method in Treatment of Acute Gonorrhea. H. J. Millstone, South Chicago.—p. 451.
87 Use of Electrochemical Iodin in Urethral Infections. G. Greenberg, New York.—p. 453.

Pennsylvania Medical Journal, Athens

February, XX, No. 5

88 Early Care of Suppurative Conditions of Middle Ear and Mastoid. N. S. Weinberger, Sayre.—p. 321.
89 *Treatment of Deformed Union and Nonunion of Fractures. J. B. Roberts, Philadelphia.—p. 324.
90 *Treatment of Compound Fractures. J. M. Wainwright, Scranton.—p. 328.
91 *Criminal Epileptic with Consideration of Epilepsy as Medicolegal Problem. N. S. Yawger, Philadelphia.—p. 332.
92 Ringworm of Scalp Cured with Roentgen-Rays; Report of Eighty-Three Cases. F. C. Knowles and J. B. Ludy, Philadelphia.—p. 336.
93 Duty of Medical Profession in Problem of Cripple. J. T. Rugh, Philadelphia.—p. 339.
94 *Types of Pneumococci in Infants and Children. A. G. Mitchell, Philadelphia.—p. 343.
95 *Specific Treatment of Acute Lobar Pneumonia. R. I. Cole, New York.—p. 345.
96 *Treatment of Croupous Pneumonia by Other Than Specific Methods. M. H. Fussell, Philadelphia.—p. 351.
97 *Acidosis. J. H. Austin, Philadelphia.—p. 356.
98 *Id.; Report of Cases. C. L. Palmer, Pittsburgh.—p. 359.
99 Relative Infrequency of Drug Habit Among Middle and Upper Classes. Treatment and Final Results. F. X. Dercum, Philadelphia.—p. 362.

89. Abstracted in THE JOURNAL, Nov. 4, 1916, p. 1395.

90, 94 and 95. Abstracted in THE JOURNAL, Nov. 11, 1916, p. 1471.

91. Abstracted in THE JOURNAL, Oct. 14, 1916, p. 1179.

96. **Treatment of Croupous Pneumonia.**—The six essentials of treatment which, Fussell says, are applicable to practically every case are: early recognition of the case; absolute rest, mental as well as physical; abundance of fresh air, pure, unheated, unbreathed air, admitted into the room through wide open windows; proper amount of good nourishing food; constant watchfulness by a good trained nurse; administration of proper drugs at the proper times. Fussell points out that while the temperature ranges between 103 and 105 F. for eight or nine days this degree of temperature is not particularly harmful. Baths and sponges are not necessary, and it would seem that the high temperature for that length of time is not more harmful than the disturbance which their administration involves. Cold may be applied to the head or to the afflicted side of the chest with the result of controlling the temperature to a certain extent. Coal tar antipyretics should never be used.

Each of the conditions of the circulation needs a different treatment. The first with high and often irregular fever, possibly with a low leukocytic count, and low muttering delirium, fresh air, if it has not already been used, cold sponges, normal salt solution, whether by hypodermoclysis or intravenous injection or proctoclysis, is valuable. Caffein is used in the form of caffein sodium benzoate hypodermically; strychnin also is valuable. Digitalis should be used, but its value is much more problematical. In the second condition, dilatation of the right side of the heart with a high blood pressure, cyanosis, with an accentuation of the second pulmonary sound, and bloodletting is of the greatest amount of value. Here, too, the use of digitalis is very valuable. Other cardiac stimulants also can be called into use such as caffein and ammonia, digitalis being the most useful. The third condition with sudden fall of blood pressure, running pulse and leaking skin is the most hopeless of all. Strychnin, caffein, the intravenous injection of epinephrin chlorid may be tried. In the author's experience, however, this is of little value. The pressure will rapidly rise, but is of extremely short duration. Strophanthin, or digitalis must be used hypodermically, with the hope of strengthening the heart muscle. Oxygen may be used and will give some comfort to the patient, but there is no lasting value by its use.

97. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1327.

98. **Acidosis.**—In all acute infections in which the diagnosis is not absolutely clear Palmer believes it is advisable to have urinalysis for acetone and diacetic acid; in fact, in routine urinalysis it is advisable to test for these substances, inasmuch as it might throw considerable light on certain obscure conditions. It is also advisable, in suspected cases, to estimate the carbon dioxid tension of the alveolar air.

Public Health Journal, Toronto

February, VIII, No. 2

100 Syphilis from Medical Aspect. A. McPhedran, Toronto.—p. 33.
101 Public Health Aspects of Venereal Diseases. C. J. Hastings, Toronto.—p. 37.
102 Attitude of Hospital. C. K. Clarke, Toronto.—p. 41.
103 Venereal Disease Problem from Military Standpoint. G. Bates.—p. 43.
104 Need for Sanitary Control and Minimum Standard of House Construction. F. Cartlidge, Moose Jaw, Sask.—p. 52.
105 Hours of Work in Relation to Efficiency and Output. J. W. S. McCullough, Toronto.—p. 60.

Southern Medical Journal, Birmingham

March, X, No. 3

106 *Correlation of Laboratory and Clinical Teaching. G. Dock, St. Louis.—p. 187.
107 *Significance of Hypertension. C. W. Strickler, Atlanta, Ga.—p. 191.
108 Renal Functional Tests. J. T. Geraghty, Baltimore.—p. 194.
109 Infant Stools as Diagnostic Aids to General Practitioner. W. Weston, Columbia, S. C.—p. 197.
110 *Treatment of Syphilis with Arsenic Preparations. E. H. Martin, Hot Springs, Ark.—p. 201.
111 Public Health Activities in Southern States with Suggestions for Increased Efficiency. W. S. Leathers, University, Miss.—p. 213.
112 Rôle of County Health Officer in Public Health Work.—T. M. Dye, Clarksdale, Miss.—p. 218.
113 *Health Insurance; Its Relation to Medical Profession. B. S. Warren, Washington, D. C.—p. 222.
114 Gastric Cancer. W. A. Bryan, Nashville, Tenn.—p. 230.
115 *Neglected Appendicitis. J. L. Crook, Jackson, Tenn.—p. 233.
116 *Treatment of More Common Fractures. L. E. Burch, Nashville, Tenn.—p. 237.
117 *Value of Genupectoral Position for Bastedo's Sign in Chronic Appendicitis. J. D. S. Davis, Birmingham.—p. 240.
118 *Basal Celled Cancers of Skin. H. H. Hazen, Washington, D. C.—p. 241.
119 Aural Phenomena Result of Unusual Influences. E. H. Cary, Dallas, Texas.—p. 249.
120 Submucous Resection of Nasal Septum. W. T. Patton, New Orleans.—p. 253.
121 Id.; Report of One Hundred Cases. C. S. Dodd, Petersburg, Va.—p. 257.

106. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1967.

107. **Significance of Hypertension.**—Of all the theories advanced as a cause of hypertension, Strickler believes the toxic to be most rational; and while the manner in which it acts cannot be explained nor can the agents be named, the author believes we possess the clinical evidence that they respond more quickly and remain well for a longer period of time when this condition has been relieved. Hypertension is not a cause of nephritis or arteriosclerosis, nor is it caused by them, but is associated with them and may be influenced to some extent by them. Worry, mental and physical strain may keep up a moderate hypertension.

110 and 113. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1966.

115 and 116. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1967.

117. **Bastedo's Sign in Chronic Appendicitis.**—Davis agreed with Goodman and Lueders that the Bastedo test is not pathognomonic of chronic appendicitis and that there is no constancy in the results obtained with it. But, he says, if the patient is placed in the knee chest position and a rectal tube introduced into the rectum, the sigmoid at once becomes inflated with air, straightens out, and fluid may be made to pass through the sigmoid up into the colon. So he came to the conclusion that failures were due to not getting air to the head of the colon. In a case in which he suspected a chronically inflamed appendix, he had inflated the rectum by the Bastedo method and failed to get pain on pressure over the cecum. He placed the patient in the knee chest position and inflated the colon, which caused acute pain at McBurney's point. When the patient was turned on the back, pressure

over the appendix caused severe pain. Since this experience he has been in the habit of placing all suspected chronic cases of appendicitis, who do not give pain on pressure before colon inflation, in the knee chest position for air distention with uniform results. In every case in which pain was so induced an inflamed appendix was found at operation.

118. Abstracted in The Journal, Dec. 23, 1916, p. 1968.

Vermont Medicine, Rutland

February, II, No. 2

122 Fractures of Lower End of Humerus. J. B. Wheeler, Burlington.—p. 29.

Washington Medical Annals

January, XVI, No. 1

123 Acidosis and Renal Insufficiency. W. J. Mallory, Washington, D. C.—p. 11.
124 Case of Spurious Hermaphroditism. J. Constas, Washington, D. C.—p. 19.
125 Two Cases; Cystic Dilatation of Ends of Ureters and Foreign Body in Bladder. A. Kemble, Washington, D. C.—p. 20.
126 Fracture of Femur; Newer Methods of Treatment. W. P. Carr, Washington, D. C.—p. 23.
127 Congenital Pyloric Stenosis in Baby Five Weeks Old—Operation. W. B. Marbury, Washington, D. C.—p. 27.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

February, XXI, No. 9

1 Some Aids to Accuracy and Rapidity in Roentgen Ray Localization. W. Oram.—p. 277.
2 Case of Multiple Exostoses and Abnormalities of Osseous System Occurring in Soldier on Active Service in France. J. McKail.—p. 286.
3 Use of Localization Methods in Elucidation of Doubtful Shadows in Kidney Region. F. Hernaman-Johnson.—p. 291.
4 Two Radium Applicators for Malignant Disease of Mouth and Pharynx. C. H. Bubb.—p. 293.

British Journal of Children's Diseases, London

December, 1916, XIII, No. 156

5 Heart Disease among Elementary Schoolchildren. J. Priestley.—p. 353.
6 Congenital Tuberculosis. F. P. Weber.—p. 359.

British Medical Journal, London

February 17, I, No. 2929

7 Influence Exerted by Military Experience of John Hunter on Himself and on Military Surgeon of Today. G. H. Makins.—p. 213.
8 *Case of Rotation of Liver on Its Vertical Axis. J. Howell.—p. 219.
9 Effects of Cinematograph Displays on Eyes of Children. N. B. Harman.—p. 219.
10 Case of Puerperal Fever Treated by Streptococcic Vaccine. R. Kay.—p. 221.
11 Case of Trench Fever Contracted in England. R. D. MacGregor.—p. 221.
12 *So-Called Trench Fever as Seen in England. J. Ramsay.—p. 222.

February 24, No. 2930

13 Principles Governing Early Treatment (Absolute Rest) of Infantile Paralysis. W. C. MacKenzie.—p. 249.
14 *Modern Treatment of Diabetes Mellitus. O. Leyton.—p. 252.
15 Cardiac Disease in Soldiers and Recruits. W. Scarisbrick.—p. 254.
16 *Hypochlorous Solution Electrically Produced from Hypertonic Saline as Disinfectant for Septic Wounds. J. M. Beattie, F. C. Lewis and G. W. Gee.—p. 256.
17 *Autodisinfection of Wounds by Use of Ether Solution. A. Distaso and T. R. Bowen.—p. 259.
18 Relation of Type of Coccus to Type of Disease in Meningococcal Meningitis. A. M. Kennedy and C. C. Worster-Drought.—p. 261.

8. **Rotation of Liver on Its Vertical Axis.**—Howell was preparing to perform cholecystotomy for the removal of gallstones on a female patient, aged 33, when he discovered this anomaly. The liver had rotated on its vertical axis through an angle of approximately 90 degrees; the lobe opposite the incision and covered by the suspensory ligament was the left, with the characteristic omental tuberosity on its under surface, and the quadrate lobe, instead of being opposed to the abdominal wall between the midline and right semilunar lines, was related to the right hypochondrium between the anterior and posterior axillary lines. It was impossible to see the gallbladder incision, though it extended from the margin of the ribs to opposite the umbilicus. Howell tried to rotate the liver back again to its normal position, grasping it with both hands to make the attempt, but found that it was immovably fixed in this position, nor could the gallbladder be made to present in the incision. He therefore made a transverse incision at right angles to his first incision back as far as the midaxillary line. The gallbladder could now be opened in the corner of this incision, and eighty-one small calculi were evacuated.

12. **Trench Fever as Seen in England.**—It seems that in the training camps of England exists a disease which for all practical purposes is indistinguishable from the trench fever of the overseas troops. It occurs in men who have never been in the trenches, and who are not infected with lice.

14. **Modern Treatment of Diabetes Mellitus.**—Leyton suggests that the Allen treatment be called the "treatment by alimentary rest," for three reasons: (1) the alteration in metabolism which occurs when food is withheld is due to rest of the various glands which are stimulated during digestion, and not to the simple absence of food; (2) to prevent confusion between the Allen treatment and the Guelpa treatment, which has been called "the starvation treatment" for quite a long time; (3) starvation treatment is a name which does not commend itself to patients. Since the treatment entails alimentary rest for several days, it is obvious that not every case should be submitted to it.

16. **Electrically Produced Hypochlorous Solution.**—The principle on which the apparatus originally devised by one of the authors (Lewis) works is that when an electric current of suitable strength is passed through even a weak solution of salt, part of the salt is decomposed, as also is part of the water. As a result, chemical reaction occurs and a body of high disinfecting value is produced. Experiments with this type of apparatus showed that bacteria of all kinds could be destroyed rapidly and effectively. The main chemical agents produced are hypochlorous acid and sodium hypochlorite. Cases are reported to support the efficacy of this antiseptic. The bactericidal action of this hypochlorous solution is said to be high, and it has the advantage over the ordinarily used antiseptics in that it does not coagulate albuminous material, and thus form a protecting coagulum. It has a slight stimulant action, but is nonirritating. The lymph flow in the wound is encouraged by the hypertonic solution which is used for the production of the hypochlorite. Surface bacteria on septic foci seem to be destroyed almost immediately, and the stimulant action on the lymph flow tends to wash to the surface the more deeply situated organisms. (This lymph increase is very evident in the wounds treated with this solution.) The solution can be produced very simply, and at comparatively small cost.

17. **Use of Ether in Autodisinfection of Wounds.**—The authors' aim has been to create embryonic tissue regeneration in wounds by a sort of "quickening" process. Ether was selected on account of its marked stimulating power. A series of patients were treated by irrigation with a 2 per cent. solution, using about 2 liters once daily. Sections of the granulations grown during the treatment were made. From them the authors learned that regeneration of the tissues takes place normally. It is, however, to be noted that the number of polymorphonuclear leukocytes present was very small, but lymphocytes were present in fair numbers. The most striking feature was the marked production of fibroblasts. The new blood vessels were very richly distributed, and quickly formed in the deep layers. The upper layers showed fibroblasts which were in the stage of forming vessels. On staining the sections by Gram's method and fuchsin no microbes were seen. The total absence of fibrin (Weigert-Gram method) was another striking feature in the sections. The authors believe that the observations prove that the leukocyte defensive property is not to be taken into consideration. The bactericidal action of the blood is emphasized. The function of the ether is to stimulate the growth of the

tissues without clotting the fibrin, and providing thus the newly-formed tissue with free and constant lavage with blood. The discharge of patients from the hospital is materially accelerated by the use of the ether method, on account of its comparatively rapid healing power.

Journal of Laryngology, Rhinology and Otology, London

February, XXXII, No. 2

19 Orthopedic Treatment of Laryngeal Stenosis. C. Jackson.—p. 51.
20 Sphenoid Sinus; Present Day Value of Surgical Procedure. R. H. Skillern.—p. 52.
21 Method of Closing Postaural Fistula. L. J. Curtin.—p. 66.

Journal of Pathology and Bacteriology, Cambridge

April, 1916, XX, No. 4

22 *Etiology of Scarlet Fever. W. Mair.—p. 366.
23 *Pathology and Bacteriology of Gas Gangrene. K. Taylor.—p. 384.
24 *Reactions of Tubercle Bacillus to Sperm Oil and Its Constituents. A. H. Miller. Chemistry of Sperm Oil. A. R. Smith.—p. 395.
25 *Whey Medium for Gonococcus. T. Watabiki.—p. 408.
26 *Effects of Vaccine Sensitized with Homologous Immune Serum, as Compared with Those of Nonsensitized Vaccine; Experimental Study. S. Kakehi.—p. 410.

22. **Etiology of Scarlet Fever.**—The *Diplococcus scarlatinae*, Mair says, can be demonstrated in the throats of scarlet fever patients during the first week of the disease in 87 per cent. of the cases, and it disappears as a rule from the throat about the fifth week of convalescence, persisting in an as yet undetermined percentage of cases for a much longer period. The diplococcus produces in monkeys a disease which in many respects resembles scarlet fever, although it has little tendency to produce septicemia in the monkey. The *Diplococcus scarlatinae* is confined to the region of primary invasion, which is usually the throat, and there produces toxins which are poured into the blood stream. Another feature common to the disease in man and in the monkey is scarlatinal arthritis. No definite evidence of the occurrence of nephritis in the monkey has yet been obtained. The most outstanding clinical feature of scarlet fever, namely, the rash, has not been reproduced in the monkey. Additional evidence in favor of the diplococcal theory, Mair says, is found in the fact that complement fixation reactions occur with much greater frequency, and with greater intensity in scarlet fever than in control cases. In one case this reaction was found to be distinctly positive on the third day of the disease, while on subsequent examinations on the tenth and seventeenth days it could not be detected. This observation is very much against the view that the diplococcus is a secondary invader. Finally, the biologic characters of the diplococcus are not inconsistent with known facts in the epidemiology of scarlet fever. Even if further research makes it necessary to identify with one or other subgroup of the *Diplococcus scarlatinae* all the bile soluble diplococci found in normal throats, Mair says, no valid objection could be made for that reason on statistical grounds, to the diplococcal theory of scarlet fever.

23. **Pathology and Bacteriology of Gas Gangrene.**—It is suggested by Taylor that the fatal cases of infection by the gas bacillus pass through the following phases: Phase 1, dormant stage; localized infection of the wound; Phase 2, stage of acute gaseous distention, the result of obstruction to the escape of the gas generated locally in the wound; Phase 3, explosive stage; this is characterized by the rapid extension of the swelling associated with subcutaneous crepitus; Phase 4, stage of systemic intoxication; Phase 5, stage of septicemia. The terminal invasion of the blood by the bacilli, when it happens, is probably a very late phenomenon, occurring approximately at the time of death. The first phase, or the stage of local infection in the wound with the free escape of a small amount of gas, represents a common type seen in fresh wounds. The great majority of cases do not pass beyond this stage. When, however, for any reason, the free escape of the gas becomes interfered with, the second phase, with its clinical picture of gas gangrene, develops rapidly and passes frequently within a few hours into the third stage. If sufficient drainage be established at this point for the escape of the gas, and too large a mass of muscle has not been destroyed, recovery is usual; otherwise the patient passes shortly into the stage of intoxication, and dies within a few hours, frequently before the fifth or septicemic stage is reached. The possibility of gas embolism cannot be excluded in all cases, but seems improbable as a cause of death.

24. **Reactions of Tubercle Bacillus to Sperm Oil.**—Miller found that the tubercle bacillus when grown on sperm oil mediums is converted into "banded" and "beaded" forms. This is also shown in its first stages on olive oil medium, but does not occur with other fatty substances tested. It appears to be due, in part at least, to the presence of unsaturated fatty acids in the form of esters.

25. **Whey Medium for Gonococcus.**—Watabiki after long experience with the cultivation of gonococcus, maintains that blood agar and blood bouillon are the most suitable culture mediums with which to obtain excellent results. Moreover, if blood cannot easily be had for the purpose, whey agar or whey bouillon can be used as substitutes for blood agar or blood bouillon.

26. **Effects of Sensitized Vaccine.**—Dealing with the *B. pseudotuberculosis-rodentium* (Pfeiffer), Kakehi found that the following are the effects on the rabbit of the killed vaccine sensitized by Besredka's method, as compared with those of nonsensitized: 1. The sensitized vaccine has one slight advantage in that the increase of temperature in injected animals is a little lower on the average than that produced by the nonsensitized, not only after the first injection, but also after succeeding injections. 2. The animals can generally bear the various series of injections of the sensitized vaccine with much less loss of weight than when the nonsensitized vaccine is used, so that the former appears to be less toxic, although the number of animals which died of injection is not sufficient to decide this point. 3. As to the degree of immunity obtained by the injection of each kind of vaccine, there is no appreciable difference, for they both give about the same degree of resistance against various lethal doses, when the animals are compared ten days after the last injection of vaccine. 4. The production of antibodies in the serum, testable by agglutination and complement fixation, is much less with the sensitized than with the nonsensitized vaccine under the same conditions. Thus the estimation of these antibodies in vitro does not show the actual degree of immunity given by the former, as compared with the latter.

Journal of Tropical Medicine and Hygiene, London

February 15, XX, No. 4

27 Acanthokeratodermia Precornufaciens. A. J. Chalmers and S. Atiyah.—p. 37.

Lancet, London

February 24, I, No. 4878

28 *Dupuytren's Contraction of Palmar Fascia; Dupuytren's Life and Works. J. Hutchinson.—p. 285.
29 Hunterian Tradition in Cardiac Research. W. L. Brown.—p. 291.
30 *Specificity in Antiseptics. K. Taylor.—p. 294.
31 Intestinal Protozoa in Salonika War Area. W. Roche.—p. 297.
32 Method of Plaster Splinting for Treatment of Knee Lesions. G. Davis.—p. 298.
33 Starvation Treatment of Young Diabetic. P. C. C. Fenwick.—p. 299.

28. **Dupuytren's Contraction of Palmar Fascia.**—That all cases (mild or severe) of Dupuytren's contraction can be treated successfully by either subcutaneous division or open excision of the fascial bands, Hutchinson contends is not true. He emphasizes also the dangers of splint treatment after the operation. The V Y method in either of its forms, whether the angular reflected flap is made of skin only or of skin and fascia together, Hutchinson says, is not a good one. It involves too much scarring of the palm, the prolongation of the fascia to the second phalanx cannot be dealt with by this method. He has never known it successful in Dupuytren's contraction. Again, it is not satisfactory to remove much skin from in front of the bent fingers and to trust to skin grafts. The wide excision of skin and fascia, followed by transplantation of a flap from the side of the chest (Paul Berger's method) has nothing whatever to recommend it. Among other faults, it fails entirely to deal with the contraction of the first interphalangeal joint.

57. **Syphilitic Nephritis.**—In the three cases here described by Merklen and Heuyer as also in others in their practice, there was nephritis without dropsy but with high blood pressure or uremia, in persons under 50 and sometimes only 40 or under. Infection is responsible for the clinical picture, not arteriosclerosis, as in the classic picture over 60. Syphilis is sometimes responsible, but other infections may likewise be incriminated in other cases. In a series published recently by Lian, five of the ten patients gave a positive Wassermann reaction. The necropsy findings in one of their cases, in a man of 35, included a large cicatrix in one suprarenal, probably the relics of a gumma. The arteries in the brain were scattered along their course with atheromatous nodules, almost like rows of beads, and the kidneys showed endarteritis and sclerosis. The infection or infections causing the trouble in persons of 40 or under may have escaped recognition; syphilis should be excluded first of all. The syphilis is usually of long standing, so that it is a tertiary renal symptom. There are usually manifestations also on the part of the heart or aorta. To date, no benefit from specific treatment of the syphilis at this stage has been realized. In persons of about 60 or over, on the other hand, the kidney trouble is the localization in the kidneys of a general tendency to arteriosclerosis.

Progrès Médical, Paris

January 20, XXXII, No. 3, pp. 19-28

61 *Syphilitic Ophthalmoplegic Headache. A. Poulard.—p. 19.
62 Epidemic of Bacillary Dysentery. D. Gilbert.—p. 22.
63 The Professional Patrimony of Physicians. A. Satre.—p. 25.
64 Importance of Cytologic Examination of the Gastric Content in Diagnosis of Cancer of the Stomach. H. Codet.—p. 26.

61. **Headache with Ophthalmoplegia.**—Poulard remarks that this is almost invariably of syphilitic origin. He insists on treatment as for syphilis, even when the Wassermann test and the spinal fluid give negative findings. Ophthalmoplegic migraine is also a recurring paralysis of the oculomotors, always accompanied by headache. He warns further that syphilitic meningitis may be accompanied by fever. He has several patients who, he is confident, owe their lives to the tenacity with which he waged war against the syphilis he suspected. With brain tumor causing ophthalmoplegia, there is usually choked disk. In case of the slightest doubt, give treatment as for syphilis. The ophthalmoplegic headache is the result of meningitis at the base which spreads to the oculomotors and induces perineuritis, and there seems to be a connection between it and tabes or general paralysis. A history of old ophthalmoplegic headache is sometimes found with tabes or may be its first manifestation, or it may occur in the course of tabes. The headache soon yields to proper treatment, and does not return, but the outlook for the future is a little less favorable.

Revue de Chirurgie, Paris

1916, XXXV, No. 7-8, pp. 1-244

65 *War Wounds of Larynx and Trachea. Treatment at the Time and Later. E. J. Moure and G. Canuyt.—p. 1.
66 Fistulas Consecutive to War Wounds of the Skull. C. Villandre.—p. 83.
67 *Cartilage Grafts from the Calf. (Recherches sur les greffes cartilagineuses hétéro-plastiques.) L. Imbert, C. Lheureux and Rouslacroix.—p. 111.
68 Extraction of Projectiles from the Pelvic Belt of Bone and Muscle. G. Leo.—p. 129. Conclusion.
69 Varieties, Evolution and Treatment of Gunshot and Shell Wounds. P. Dézarnaulds.—p. 164.
70 *Experiences with Extensive War Wounds. (Les grandes blessures de guerre.) A. Chalier and R. Glénard.—p. 179. Conclusion.
71 *Minor Points of Technic in End-to-End Suture of Intestine. (Un point de technique de l'entérorraphie circulaire.) J. Fiolle.—p. 231.
72 The Field Dressing Station. (A propos du fonctionnement intensif d'une ambulance chirurgicale de 1re ligne et du rôle d'un poste chirurgical avancé.) A. Martin.—p. 235.

65. **War Wounds of Larynx and Trachea.**—Moure and Canuyt relate that they have been constantly successful with tracheolaryngostomy in thirty-one cases, and they describe with minute detail the measures required at first and the procedures for repair later. The men not only breathe naturally but they are able to speak with a loud and intelligible voice although they have lost not only their vocal cords but often the false vocal cords and part of the aryteno-epiglottic folds. Cicatricial tissue takes the place of the vocal cords.

67. ***Calf Cartilage Grafts.***—The grafts were studded with perforations and fitted into the gap in the skull or at other points desired, under local anesthesia. A few typical cases are described in detail. In all, the cartilage flap softened in the course of a month and its elements were absorbed, an irregular sheet of connective tissue fiber taking its place in the course of a few months.

70. **Extensive War Wounds.**—This part of Chalier and Glénard's report of their experiences with 1500 cases of extensive gunshot and shell wounds, is devoted to wounds of the chest.

71. **Minor Points in the End-to-End Suture of the Intestine.**—Fiolle does away with the difficulty otherwise experienced in starting to suture the serous coats together after the mucous membranes have been sutured. At the point of attachment of the mesentery, the serosa-serosa suture is awkward and blind. Matters are simplified by passing a thread through both stumps at the point of attachment of the mesentery, before any other suturing is done. The needle is passed, perpendicularly to the axis of the intestine, through the thickness of the wall but sparing the mucosa. Passed thus through both stumps, they are approximated and the ends of the thread are tied and left long and hanging loose. This thread thus joining the stumps does not enter the lumen, but holds each stump about 2 mm. from the cut edge. The mucous membranes are then sutured all around. Then with one of the long ends of the enteromesenteric suture thread the serous coats are approximated and sutured on one side half way around, and with the other long end the seroserosa suture is completed.

Archiv für klinische Chirurgie, Berlin

1916, CVII, No. 4; pp. 533-693. Last indexed March 24, p. 943

73 External Pharyngotomy and Flap Plastic Operation for Supralaryngeal Stenosis of the Pharynx. G. Axhausen.—p. 533.
74 Technic for Plastic Operations on the Skull. (Schädelplastik.) G. Axhausen.—p. 551.
75 Multiple Callous Gastric Ulcers. (Zur Kenntnis und operativen Behandlung des multiplen callösen Magengeschwürs.) E. Liek.—p. 575.
76 *Nerve Blocking between Two Tourniquets. (Leitungsanästhesie am Oberschenkel durch Infiltration des incarcerierten Querschnitts.) R. Sievers.—p. 595.
77 War Aneurysms. (Kriegsaneurysmen.) H. v. Haberer.—p. 611.

76. **Nerve Blocking Between Two Tourniquets.**—Sievers relates that he has been able to operate on the thigh or leg without pain in twenty cases by local anesthesia induced by the infiltration technic applied to the segment of the limb, 2 or 3 cm. wide, between two broad constricting elastic bands. In from twenty to thirty minutes the limb below this segment can be operated on, even with operations taking up to an hour and a half. The analgesia keeps up as long as the circulation below is interrupted. The constricting band is applied only tight enough to arrest the circulation. Two illustrations accompany the article.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 14, XXXVIII, No. 4, pp. 49-64

78 *Postinfectious Thyroid-Hypophysis Meiopragia. (Sindromi pluriglandolari.) F. Dematheis.—p. 49.
79 Projectile in Pleural Cavity. (Diverso comportamento della pleura secondo la forma del proiettile.) G. Ceresole.—p. 51.

January 18, No. 5, pp. 65-80

80 Undulant or Malta Fever; Two Cases. (Febbre melitense.) C. Chiri.—p. 68.

78. **Postinfectious Pluriglandular Disturbances.**—In Dematheis' case the pluriglandular symptoms developed ten days after recovery from a two months' course of paratyphoid. The symptoms indicated suffering from lack of both thyroid and hypophysis secretion, as is fully described, and the man was given both thyroid and hypophysis extract, with prompt and durable benefit.

Policlinico, Rome

January 21, XXIV, No. 4, pp. 89-104

81 The Deep Reflexes in General Anesthesia. (I riflessi profondi nella narcosi.) L. Roncoroni.—p. 89.
82 *Tapeworm in Soldiers. (La teniasi nei soldati.) A. Borini.—p. 91.

January 28, No. 5, pp. 129-164

83 Treatment of War Fractures. L. Cherubini.—p. 129.
84 Present Status of Our Knowledge of Acute Poliomyelitis. G. Dragotti.—p. 135.
85 *Gum Camphor Preserves Substances and Solutions that Spoil Easily. R. Romanelli.—p. 142.
86 Importance of Dental Service for the Troops Exposed to the Vicissitudes of Trench Life. E. Giovannini.—p. 145.

January, Medical Section, No. 1, pp. 1-52

87 *Clinical Study of Evolution of Tabes. P. Ciuffini.—p. 1.
88 *Nature and Functions of the Eosinophil Blood Cells. R. Marchesini.—p. 26.

82. **Tapeworm in Soldiers.**—Borini found tapeworms in twenty among 3,000 soldiers in an Italian troop, that is, in 0.75 per cent. It was associated with other helminths in half of the cases, and one man had two tapeworms. The *Tenia mediocannellata* was most frequent. None of the men presented anemia or other appreciable disturbance from the presence of the tapeworm.

85. **Scrap of Gum Camphor Preserves Solutions that Putrefy Readily.**—Romanelli drops a scrap of gum camphor into the bottle. It floats on the surface of the fluid, not dissolving readily, and its fumes seem to destroy germs entering the bottle. He has thus kept white of egg unaltered for ten years, and a 5 per cent. solution of gelatin for a year or more, without change. Solutions for hypodermic injection can be thus kept indefinitely, he states, without growth of microorganisms. In control solutions, all kinds of molds and bacilli rapidly proliferate. Even if the lump of gum camphor, the size of a pea or larger, dissolves in the fluid—which is liable to happen in case there is alcohol in the fluid—this does no harm as camphor is used both internally and hypodermically.

87. **Evolution of Tabes.**—Ciuffini remarks that in the last five years or so it seems to be the general impression that the course of tabes is milder than it used to be, and not so fatally progressive. To determine whether there is a basis for this assumption, he has been studying 200 cases of tabes dating from 1895 to 1915. He classifies them by five-year periods, from the records of the Rome clinic for nervous diseases. There is no doubt that in the last decade the tabes has shown a marked tendency to be arrested in the stage of the pains and crises, and that this phase has been slower in developing. In the first five year period, 82.4 per cent. of the patients were men, but this proportion between the sexes has gradually altered so that in the last five year period, only 66 per cent. were men and 34 per cent. women. There were only two or three farmers in the whole series. A history of syphilis was evident in 54 per cent. and dubious in 41.5 per cent., but in 4.5 per cent. nothing could be detected to suggest syphilis. Two of the tabetics had contracted syphilis at the age of 12 and 14. In only three cases did contagion occur after 40. In two cases the onset of the tabes was at 62 and 64. The interval after infection before the tabes developed ranged from one year in two cases, two years in two cases and three years in four cases, to the maximum of thirty-two years in one case; the average was between six and fifteen years. There was a history of abuse of alcohol in 55 per cent. of the total 200, while an inherited nervous taint was evident in 20 per cent. The proportion of alcoholism increased from 33 per cent. in the first period to 76 and 62 per cent. in the last two. Lancinating or other pains were the first manifestation of the tabes in 70 per cent. In 10 per cent. the first sign of trouble was paresthesia, formication in the hands, legs and face, girdle sensations in chest or abdomen, cold hands and feet, and a sensation of cotton under the feet. This proportion gradually increased until the cases of this kind formed 34 per cent. in the last period. Hyperesthesia of the skin was noted in only two patients, while six complained of headache as the initial symptom of the tabes. In a few cases there was such extreme weakness of the legs as to suggest actual slight paresis for a time. Gastric crises were the first symptoms to attract attention in from 9 to 14 per cent.; diplopia in 19 per cent. Amblyopia occurred in from 7.5 to 30 per cent. during the various periods; amaurosis in 1 per cent.

In the further course of the cases, a tendency to arrest of the anatomic and clinical course was strikingly evident in the later periods. His figures show further that the interval between infection and the onset of the tabes has grown longer. On the other hand, the simultaneous development of spinal and cerebral symptoms has grown much more frequent. Analysis of the total 200 cases confirms von Malaisé's statement that the outlook is graver with "superior tabes" and also when the interval between infection and tabes is short. The tabes is more apt to run a milder course in men than in women.

88. **The Eosinophil Cells.**—Marchesini is docent for histology and microscopic technic at Rome, and he here presents an illustrated description of his extensive experimental and clinical researches on the eosinophil cells. Everything seems to indicate, he says, that these cells, instead of being simple phagocytes, have an exalted function as a nourishing cell, possibly possessing a special secretion, not only for purposes of defence but serving also as a preparatory substratum for reedification of tissue wherever there are toxic substances to be neutralized, foreign substances or animal parasites to be encapsulated, or losses of tissue to be repaired.

Riforma Medica, Naples

1916, XXXII, No. 48, pp. 1313-1340

89 *Nature of Fatigue Toxins and Antitoxins. L. Ferrannini and S. Fichera.—p. 1313.
90 Acute Polyneuritis Suggesting Beriberi. (Contributo ad una teoria degli ormoni vegetali.) R. Massalongo.—p. 1316.
91 To Prevent the Drying out of Culture Mediums. (Per imperdire l'evaporazione nei terreni nutritivi di uso batteriologico.) A. Martiri.—p. 1322.

No. 49, pp. 1341-1368

92 Contracture of Joints from Peripheral Trauma. (Mioipertonie degli arti per traumi periferici.) G. Rummo and F. Ferrannini. —p. 1341. To be continued.
93 Intravenous Vaccination against Paratyphoid. G. Quarelli.—p. 1347.
94 The Precipitin Reaction in the Diagnosis of Epidemic Cerebrospinal Meningitis. U. Gasperini.—p. 1351.
95 Unreliability of Buchner-Soyka Technic for Cultivation of Anaerobic Bacterium—Bacillus Bifidus. C. Ninni.—p. 1356.

89. **Fatigue Toxins.**—Ferrannini and Fichera conclude here their various studies of fatigue toxins, or kenotoxins, and antitoxins. In their experiments on frogs, etc., they have apparently demonstrated in muscles, as the effect of fatigue, certain substances which act on various organs and functions in a special manner, as they describe in detail. Among their other effects they impair the nervous system, rendering it less resistant to toxic action in general. These fatigue toxins also seem to induce the production of antitoxins which neutralize their action.

Semana Medica, Buenos Aires

1916, XXIII, No. 49, pp. 583-610

96 Embryotomy with Living Fetus. J. A. Gabastou.—p. 583.
97 Mechanism of Action of Therapeutic Vaccines. M. A. Marini. —p. 585.
98 Spider and Centipede Bites. P. T. Gandia and A. Serantes.—p. 592. Concluded in No. 51, p. 642.
99 *Tuberculous Asthma; Two Cases. J. Frenguelli.—p. 602.

No. 50, pp. 611-638

100 Infantile Tuberculosis in Argentina; Prevalence and Prophylaxis. M. Acuña.—p. 611.
101 Aphasia; Two Cases. (Sobre dos casos de afemia.) L. S. Moreno. —p. 624.
102 Correction by way of the Vagina of Retrodisplacement of the Uterus Interfering with Pregnancy and Delivery. A. Chueco. —p. 628.
103 *Lymphocytosis in Syphilis. C. P. Mayer and A. C. Gourdy.—p. 636. Conclusion.

No. 51, pp. 639-666

104 *Variations in Cholesterin Content of the Blood during Menstruation. G. P. Goñalons.—p. 639.
105 Spider and Centipede Bites. (Lesiones cutaneas provocadas por insectos.) P. T. Gandia and A. Serantes.—p. 642. Commenced in No. 49, p. 592.
106 Treatment of Congenital Twisted Feet. (Caso de tratamiento de pies torcidos congenitos.) E. M. Cavazzutti.—p. 645.
107 Proposed Plan for Reorganization of Public Health Service. F. Otero.—p. 648. Concluded in No. 52, p. 682.

99. **Tuberculous Asthma.**—Frenguelli reports cases of asthma in men of 28 and 43, both with signs suggesting latent tuberculosis although no focus could be found. Both were given tuberculin treatment on the basis that the asthma was an anaphylactic phenomenon from the tubercle bacilli toxins. The improvement was marked in both, and the asthma soon disappeared entirely. These were the cases showing the most

striking benefit in the shortest time of all in a much larger total experience.

103. **Lymphocytosis in Syphilis.**—See abstract 80 in The Journal of March 17, 1917, p. 884.

104. **Cholesterinemia during Menstruation.** — Goñalons recorded the findings in twenty-seven complete menstrual cycles. They show that the cholesterin content of the blood rises abruptly five, six or seven days before the menses and then gradually declines a little, but rises again as the menses become established keeping at this same level, somewhat below the early peak, to the close of the menses and then gradually dropping back to the ordinary level where it remains till it runs up abruptly anew from five to seven days before the onset of the menses. One woman with exophthalmic goiter and one with postpuerperal amenorrhea showed this same curve of the cholesterinemia although there was no uterine discharge.

Russkiy Vrach, Petrograd

1916, XV, No. 48, pp. 1129-1152

108 Pirogoff's Field Surgery. (N. I. Pirogoff i ego voennopolevaya khirurgiya.) S. Y. Shtraikh.—p. 1129.
109 *Technic for Preparing Anatomic Specimens to Keep without Fluid and Exposed to the Air. N. K. Lisenkoff.—p. 1131.
110 The Teaching of Hygiene in the Medical Schools of Russia. N. N. Kostyamin.—p. 1136.
111 Edema as Local Disturbance in the Extremities Consecutive to Trauma. (Ob otekie konechnostei poslie traumi.) V. N. Novikoff.—p. 1140.
*112 *Germ of Typhus.* (K etiologii sipnogo typha.) A. I. Savatieff and D. D. Lokhoff.—p. 1141.
113 Presence in Nature of Bacillus of Fish Poison. (Bac. ichthyismi i usloviyakh proniknoveniya ikh v ribnie p.odukti.) S. V. Konstansoff.—p. 1146.

109. **Anatomic Specimens Kept without Fluid and Open to the Air.**—Lisenkoff gives seven illustrations of large anatomic specimens which have kept from six to twenty years without loss of size or outline and in approximately the natural colors. The specimens show little shriveling, even of the skin. The specimens are prepared by soaking them for a month, at least, in a mixture of 500 parts glycerin; 1,000 parts plain water; 500 parts potassium acetate, by weight, and 40 parts liquor formaldehydi. The specimen floats on the fluid, and he covers it with absorbent cotton, this floating also on the fluid. By injecting the fluid into the vessels of the upper half, the procedure is hastened. The fluid can also be used to embalm cadavers. At first he kept the specimens on glass in wood, zinc or iron boxes or glass jars, covered with a sheet of glass. The latter never sweated, showing that evaporation was imperceptible. Some of the specimens were in such constant use in the lecture room that they were out of their receptacles most of the time, and it was found that this did no harm, so now the specimens are kept loose on the museum shelves. The muscle keeps pink and the other tints show little change, while topographic conditions are absolutely normal. The specimens illustrated are cross and lengthwise sections of the trunk, trunk with head, and trunk with thigh. Lisenkoff is professor of topographic anatomy and operative surgery at the University of Odessa, and his method has been in use for twenty years. He first used twice the amount of glycerin and only half the amount of water of the formula given above, but found the later formula equally effectual. Lately he has used 2 parts thymol (first dissolved in 20 parts alcohol), in place of the formaldehyd, and found it equally effectual. Any other equally potent antiputrefaction drug would probably answer the purpose also.

112. **Etiology of Typhus.**—The experiences related here of the constant presence of a certain micro-organism in the blood and excreta of typhus patients and cadavers seem to indicate that this is the causal agent of the disease. A disease resembling human typhus was induced in animals by injecting cultures of this bacillus. It seems to belong to the hemorrhagic septicemia group.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 13, I, No. 2, pp. 65-132

114 Disturbances in Orientation, Appreciation of Figures, Time, etc., with Localized Intracranial Process; Two Cases. W. Van Woerkom.—p. 73.
115 *Influence of Horse Paratyphoid Gland Substance on Parathyreopriva Tetany. H. *W. Stenvers.—p. 85.*
116 Infection of Maxillary Sinus by way of Wisdom Tooth. D. J. De Levie.—p. 94.

115. **Horse Parathyroid Treatment of Postoperative Tetany.**—This communication from the university clinic for nervous diseases at Utrecht reports the case of a young woman with the typical picture of postoperative tetany after thyroidectomy. An attack of tetany occurred before she had left the table. Her exophthalmic goiter has been cured by the two operations on the thyroid, the interval eighteen months. The tetany was treated with fresh parathyroids from the horse. Stenvers obtained them from the slaughter house in their natural setting, and separated them out himself. On account of the scarcity of horses due to the war, he was unable to get as many as he would have liked. His microscopic examination of parathyroids from dogs and calves seemed to show that they consisted of true thyroid tissue, so he did not attempt to use them. The horse parathyroids were placed in sterile physiologic solution as soon as they were separated out, and they were served mixed with the food at the earliest possible moment. The electric reactions, the elimination of creatinin in the urine, and the patient's general condition were kept under constant supervision, and no drugs of any kind were given. An extremely favorable influence from this parathyroid treatment was evident, but it lasted only while the treatment was kept up. Consequently two parathyroid glands, just removed from two patients with exophthalmic goiter, were implanted and this had also a favorable influence which proved durable, so that the patient is now nearly free from tetany, with full working capacity restored. Before treatment, the creatinin content of the urine averaged 1342 mg. a day. Under treatment with horse parathyroids it dropped to 612 mg. During the following month, it averaged 726 mg. After the transplantation, it averaged 586, and two or three months later 884 mg. When the figure was below 613 mg. the patient felt well and had no spasms. The creatinin output is thus a good index of conditions in tetany.

Hospitalstidende, Copenhagen

January 17, LX, No. 3, pp. 49-72

117 *Determination of Difference in Carbon Dioxid Tension in Arterial and Venous Blood. (Om Bestemmelse af Forskellen mellem arteriel og venøs Kulsyrespænding *under normale og pathologiske* Forhold samt om Anvendelsen af denne Forskel til Maalingen af Forandringer i Minutvolumens Størrelse.) C. Sonne.—p. 49. Conclusion.
118 White Spots in Nails from Handling Brine. (Leukonychia artificialis. *Høkernegle.) E. Sylvest.—p. 59.*

117. **Determination of Carbon Dioxid Tension in Arterial and Venous Blood.**—Sonne describes a method with which it is possible to determine the difference in carbon dioxid tension of the arterial and venous blood. This difference, in connection with the carbon dioxid tension of the alveolar air affords insight into changes in the rapidity of the blood current. We thus have a reliable means for estimating the variations in the amount of blood passed through the heart per minute. In four patients with auricular flutter and lost compensation the minute volume was reduced by 50 per cent. In two patients with well compensated heart disease, the findings suggested that the rapidity of the blood current was somewhat reduced, probably to permit better utilization of the oxygen in the blood.

Ugeskrift for Læger, Copenhagen

January 11, LXXIX, No. 2, pp. 43-84

119 *The Importance of the Wassermann Reaction for the Internist. V. Scheel.—p. 43. A. Faber.—p. 49.

119. **The Wassermann Reaction in Study of Internal Diseases.**—Scheel has had the Wassermann test applied to all the adult patients at the Bispebjærg Hospital since 1913. By this means it has been possible to detect and give specific treatment in cases in which there was absolutely nothing else to suggest syphilis.

Faber gives tabulated details of all the patients giving a positive reaction, discussing various problems as to treatment when this is the only thing to suggest syphilis.

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PUBLIC HEALTH TRAINING IN UNIVERSITIES

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The law of social demand and academic supply is far from an exact formula. Sometimes universities offer a training for careers that depend on other things than institutional preparation. For example, a few years ago several universities announced special courses for candidates for the diplomatic service. When it transpired that political pull, an actual speaking knowledge of foreign languages, or a recognized social status were much more likely to gain one a position than the pursuit of courses in comparative government, international law, the history of diplomacy, and a precarious reading knowledge of French and German, the reasons why these university courses were not patronized became evident. On the other hand, academic institutions are often slow to recognize actual vocational needs, and even when attempts are made to meet authentic demands, the first efforts are too likely to be abstract and speculative, and out of relation to the actual concrete problems involved.

The efforts of universities to meet the needs of organized public health have illustrated both of these tendencies. The first courses to be offered were generally in advance of specific demand. There was little response on the part of prospective public sanitarians. The careers in preventive medicine and public hygiene were not sufficiently attractive, and in the absence of a merit system the causal connection between thorough preparation and appointments and promotions was not convincing. Of late, however, the widespread interest in social medicine, the demand for more efficient service, and the multiplication of administrative and specialized positions, governmental and institutional, have given an impetus to public health training. There is now a possibility that in attempts to meet the growing demand, the universities have rather hastily and with inadequate resources organized curriculums which are not thoroughly adjusted to actual needs. It is only what, in the circumstances, was to be expected. The universities which have taken the lead deserve full credit for the initiative and ambition which they have displayed.

It seems clear that successful public health training must be carried on either by universities or by schools in close affiliation with them. Only in a large and well developed institution is it possible economically to provide the various kinds of knowledge and discipline which have a bearing on the preparation of a public sanitarian. Moreover, the university atmosphere of investigation and scientific collaboration offers the most favorable and stimulating environment for the kind of training under discussion. This is not to say that the university can provide all of the necessary conditions. The closest and most sympathetic cooperation with agencies which are carrying on actual public health activities is of fundamental importance. For this no university can in itself provide a substitute. To the universities of the country, however, we must look for leadership in developing thorough and progressive schools or departments for training various types of public health functionaries.

As a matter of fact, except for the apprenticeship opportunities in federal, state and city bureaus, the conscious attempts to provide such training have so far been made by the universities. Much has already been accomplished. The lead was taken by the University of Pennsylvania in 1909. This example was followed by Harvard in 1910, Wisconsin in 1911, Tulane in 1912, Colorado, Michigan and the Detroit College of Medicine and Surgery in 1913, Bellevue and California in 1914, and Ohio State in 1915. In October, 1918, Johns Hopkins University, with the aid of the Rockefeller Foundation, will open a school of hygiene and public health under the most favorable conditions which have as yet been realized for the training of specialists in preventive medicine and health administration. The principles, curriculums, standards and ideals embodied in the plans which have been put in force by these institutions offer the general outlines of a system which in the future will gradually be improved and more nicely adjusted to the actual needs of community and nation.

Of the ten institutions, all but two require for admission to the public health course the degree of Doctor of Medicine. Three universities require both the bachelor's degree and the professional medical degree. The obvious implication is that the full preparation of a medical practitioner is desirable, even essential for successful public health work. In some cases this idea is modified to this extent: In the last year of the medical course, students are permitted to substitute, for certain clinical subjects, courses which have a direct bearing on preventive medicine. How far the fact that the initiative in organizing public health training has been taken by the medical schools of the universities influences the requirement of the M.D. degree, and how far this stipulation is necessary for the end in view will be briefly discussed in a later paragraph.

In seven of the institutions under consideration, the training is given in one year; in three, two years of work are required. This variation is correlated with different forms of recognition, varying from the degree of Doctor of Public Health to a certificate of public health or the title of Graduate of Public Health. The lack of uniform practice reflects a variation in ideals and marks a difference in the types of functionaries and the kinds of training which are required for these officers. Seven institutions give the degree of Doctor of Public Health, namely, Pennsylvania, Harvard, Wisconsin, Tulane, Colorado, Michigan and Bellevue. Of these schools, Michigan, Colorado and Wisconsin offer two year courses; the other four require only one.

As has already been indicated, the chief recognition takes the form of the degree of Doctor of Public Health. Pennsylvania also confers the degree of Certified Sanitarian after a one year course. Certain graduates of one year courses at Wisconsin and Detroit receive the degree of Master of Public Health. Four schools, California, Colorado, Michigan and Ohio, confer the degree of Master of Arts in Public Health and Master of Science in Public Health after one year of residence. Colorado also grants the degree of Master of Science in Sanitary Engineering after a one year course. There is obviously a tendency to assimilate the public health degrees to the graduate school system which has been uniformly adopted by the leading American universities. Thus, Doctor of Public Health corresponds with the degree of Doctor of Philosophy, while the Master's degrees in Public Health take their position as the recognized second degrees in the higher educational system.

The processes of imitation which so quickly tend to conventionalize American education have not had time to produce a fixed type of public health training. The obvious necessities, the kinds of knowledge, discipline and technic available have inevitably created uniformities. Around these, however, there is a wide field of variation. Laboratory courses in bacteriology, chemistry, protozoology and parasitology are naturally a part of the curriculum in all of the schools. These courses doubtless vary a good deal in content and method of instruction. In only three institutions is special mention made of tropical diseases. The use of different terminology and the grouping of subjects in various forms make it difficult to reach positive conclusions as to precisely what the requirements are. A substratum, however, of laboratory training is prescribed by all the schools.

The next group of courses may be described as specialized public health courses. These are public hygiene, preventive medicine, public health administration, occupational diseases, school inspection, etc. It is not always easy to differentiate these courses from laboratory courses, but in general they seem to be of a more definitely professional character, dealing more concretely with the actual problems of preventive medicine in the field. Although the published programs of three or four of the schools make no explicit mention of teaching of this character, it is fair to assume from the general statements that instruction in courses of this kind is provided.

Five of the ten schools offer courses in sanitary engineering which include water supplies, sewerage and sewage disposal, street cleaning, and housing and ventilation. Harvard, in cooperation with the Massachusetts Institute of Technology, lays stress on the engineering aspects of its curriculum. As has already been indicated, Colorado confers a special degree, that of Master of Science in Sanitary Engineering. It seems to be recognized that the engineering aspects of public health work must find a place in even a general course for the preparation of public sanitarians.

Five out of the ten schools make a place for vital statistics or demography. Sanitary legislation, political science and economics are mentioned in the curriculums of two institutions. The first impression is that the social sciences have not been sufficiently recognized in the organizing of these public health training courses. It is altogether likely, however, that in many of the special courses which have been mentioned above the questions of vital statistics, the legal aspects of public health organization and the recent progress of socialized medicine, health insurance, etc., are included. Even when allowance of this sort has been made, it seems probable that the medical school administration which has been chiefly responsible for organizing these courses of study has not sufficiently recognized the need of the cooperation of departments of economics, political science, sociology and schools of law.

One of the schools, the Detroit College of Medicine and Surgery, requires a definite period of service in a hospital for contagious diseases. Each student of public health courses is apparently required to serve an internship of twelve weeks in such an institution. Undoubtedly the students of other schools are brought into some relation with hospitals for contagious diseases in connection with the field work which is required in the curriculums of all the schools. There is a valuable suggestion in this plan of requiring a regular internship service in the wards of a hospital for contagious diseases. For students specializing in epidemiology this would be a peculiarly useful experience, under proper supervision, with opportunities for laboratory experience.

It is worth noting that all of the schools provide for practical field work. The need of connecting the experience in the laboratory and the material of the lecture room with the actual concrete problems of the profession is universally recognized. The schools have made close working arrangements with municipal and state departments of public health, with school authorities, and with charitable and correctional institutions, so that students may gain vivid first hand impressions of the conditions to be met, of the technic for dealing with them, of the spirit and methods of public health administration, and of the knowledge of human nature essential to firm and tactful control of individuals and groups.

Eight of the ten schools require as a condition of graduation the presentation of a thesis. This ordinarily takes the form of a piece of practical work, as, for example, a health survey of a given area, a study of an epidemic, or an analysis of a public health mechanism and its operation. Two or three of the schools explicity say that the requirements for the degree cannot be stated in terms of class room hours or other conventional credit units. It is the avowed purpose to lay the chief stress on individual power and the abilty to deal intelligently and effectively with the subject matter and problems under consideration. The stress laid on the thesis serves to emphasize the research character of this public health training, and the attempt to make it vital and practical rather than what "the man in the street" is wont to call "academic."

A few phases of public health work seem either to have been overlooked or only incidentally recognized. For example, the function of public health education and publicity is one which deserves study and for which special types of training should be provided. It has become evident of late that the education of public opinion in a democratic country is necessary for the progress and stability of public health work. A few individuals have shown in a conspicuous way how much can be accomplished through wise methods of education and publicity. Other types of functionaries, such as public health nurses and sanitary inspectors, of whom it is quite impossible to require a full medical course, will soon demand special forms of training. Whether apprenticeship in public health service will provide the chief means of preparation or whether schools of public health will assume this function is a question for thoughtful consideration.

In an attempt to outline the chief lines of future development it may be well to enumerate the different types of public health functionaries for whom training will have to be provided. These fall into a number of fairly well defined groups: 1. Public health administrators, men with fundamental and thorough training who are capable of serving as federal functionaries, and as state, city and county health officers. 2. Laboratory men who have had sufficient contact with field work to be thoroughly intelligent about their duties. In this group may be included also statisticians whose training in public health enables them to interpret with some intelligence the data with which they deal, and to estimate with reasonable accuracy the coefficient of corruption and the mean of mendacity by which vital statistics are so largely vitiated. 3. Administrative specialists, who, with a background of general training, have become proficient as epidemiologists, authorities in tuberculosis or specialists in venereal diseases. 4. Sanitary engineers who deal with engineering problems not merely from a physical but from a biologic point of view. 5. School medical officers who are more than practitioners and see the health of the school in its wide relations to community life on the one hand, and to individual efficiency on the other. 6. Specialists in public health education and publicity who combine with accurate knowledge the capacity to apply practically the principles of individual and group psychology. 7. Public health nurses with special training and aptitude for the important duties which more and more will devolve on them. These nurses will be differentiated, for example, into the city nurse, the town nurse and the rural nurse. 8. Sanitary inspectors of many kinds, the artisans of the public health service, who nevertheless require a training which will enable them to do their work intelligently and with satisfaction both to themselves and to the community. Doubtless as time goes on the types enumerated above will be still further differentiated, and new functionaries will be added to the list. A system of public health education must consciously take into account the functions to be performed and adapt its methods to the indicated kinds of training required.

A word may be said here about the sanitary engineer. It is sometimes assumed that engineering training with special reference to water supplies, sewage disposal, etc., best fits a man for public health administration. This is far from being true. The sanitary engineer is a specialist whose expert services are essential. But he has not the background of biologic training, the intimate knowledge of infectious diseases, or the mastery of medicine which enables him to assume the general oversight of a municipal or state public health organization. The sanitary engineer is a necessary member but not the responsible head of a modern mechanism of social medicine.

The underlying idea of successful technical training is that it should be in the hands of men thoroughly familiar with the profession involved and completely imbued with its point of view and spirit. This means that no successful course for specialized training can be made by the mere grouping of existing courses and the printing of these in a single catalogue. Business training in American universities affords an illustration in point. Colleges of commerce were created over night. Courses in economics, business law, modern languages, commercial geography, banking, insurance, etc., were grouped into a new curriculum and offered to an admiring public. The failure of these early attempts was inevitable. The courses were taught not by men who were familiar with the actual problems of business, but by instructors whose training and interests were of a wholly different tradition. The recent progress in schools of business administration has been due to the introduction of new types of teachers who, by practical contact with business organizations, have trained themselves for efficient service. The best schools are being brought into close and sympathetic connection with the business world.

This principle applies to public health training in a most obvious way. Laboratory courses, public hygiene courses, and instruction in law, economics and sociology will be of little value unless they are all dominated by public health ideals and are constantly related to public health problems. It is for this reason that the new school at Johns Hopkins University will be in a position to create from the outset the right atmosphere, by securing men who represent public health training, spirit and ideals, and who will inspire in their academic colleagues that intelligent cooperation so essential to a unified and successful course of technical training. In order to insure this unified, purposeful kind of organization the agency for the teaching of public health must have reasonable autonomy. It will not do to make the new curriculum a mere by-product of medical education or subject to its sole control. There should be a special administrative board and a director imbued with the ideals of preventive medicine. Only under such conditions can a public health teaching organization gain the requisite authority, coordinated efficiency and professional spirit.

The conditions for admission to a public health course will require careful consideration. There is an advantage in making the degree of Doctor of Medicine a prerequisite. This degree received from a medical school of the first class guarantees sound training and maturity. Moreover, it gives a public health officer a sense of security and independence, for he feels that he can fall back on the practice of his profession if he proves unadapted to the public career. On the other hand, there is a little danger that a man may gain too much of the physician's individualistic philosophy and therapeutic bent, give too much time to unnecessary medical and surgical technic, and for the very reason that he may take up the practice of his profession, lack the devotion of the person who has committed himself almost irrevocably to a career of service under public auspices. It is altogether likely that requirements will be so modified as to permit a student of medicine, after his first two years, to substitute in the second two years a good deal of public health work for the clinical courses of the regular medical curriculum. It is undesirable, however, for men who are being trained for the highest positions in preventive medicine to have less than the full equivalent of a four year medical course with two years of graduate work.

If the analysis of functions indicated in an earlier paragraph is valid, it would suggest that courses of different length and different requirements will be prescribed for the several groups. It is quite conceivable, therefore, that curriculums may vary in length from two or four to eight years beyond graduation from high school. The earlier limit might apply to nurses and inspectors, while the latter would have reference to the health executive who assumes responsibility for a large administrative unit. Appropriate certificates and degrees will doubtless be worked out and given, as in the case of other designations, a standardized value, so that the holding of these forms of recognition will be directly related to the securing of positions, promotion, etc., in public health organizations.

Lack of time and my obvious incompetence afford good grounds for not attempting any detailed discussion of curriculums. One or two suggestions may be made in passing: 1. The fundamental public health background should be provided for all specialized functionaries. The unity of the profession, the proper team play, and efficiency can be secured only as each individual sees his special task in the wider relationships of the general theory of preventive medicine and of public health purposes. 2. The practical field work must be done under supervision, and must be carefully checked and reported. There is a good deal of so-called practical work done in connection with educational institutions, but this is likely to be of little significance because it is not made a vital part of the curriculum as a whole. The cooperation with public health agencies, therefore, will have to be worked out in a definite and precise fashion. It is possible also that it will turn out to be wise not to confer the highest degree until a candidate has demonstrated for at least a year his ability to render satisfactory service in connection with some regular agency of public health. This test would correspond to the one year's internship which medical education regards as essential for the completion of a course of thorough general training.

Ordinary laboratory facilities and supplies, in the case of a school of public health, should be supplemented by a statistical laboratory with its proper equipment; by a special public health library and museum, with exhibits of all kinds bearing on public health problems; by a collection of slides and films; by equipment, models, etc., illustrating various phases of sanitary engineering, water supplies, filtration plants, sewage disposal, housing and the like, and by exhibits of public health publicity material, charts, posters, placards, newspaper articles and advertisements. Obviously all the devices for administrative purposes, record cards, blanks, filing systems, etc., would form a part of the illustrative material at the disposal of every public health school.

The social sciences will receive more emphasis. Courses in vital statistics, the history of public health work, in the social philosophy which underlies modern collective undertakings, the economic side of public health, the growth of administrative law in its relation to preventive medicine, and the problems of poverty and of dealing with dependent, defective and delinquent groups will receive increasing attention. This will have a specially important bearing on giving not only the public health point of view but also the attitude toward modern society which is necessary for devoted and loyal public service.

It is to be hoped that some system of fellowship aid may be made available to encourage promising men and women of limited means to enter the profession. It is possible that, in connection with these schools, endowments may be secured for fellowships of this kind. It is also to be expected that subordinate positions in public health departments will be open to students in schools of public health so that these persons may at the same time support themselves and turn their work to account as a part of the training which they are receiving. In many places, arrangements of this kind have been made. It is reasonable to look forward to an extension of this plan. Fellowships might also be made useful in encouraging small communities to engage full-time health officers. Graduates with stipends for a year might in this way find openings, and after demonstrating convincingly the possibilities of modern health administration, might be given permanent positions, wholly sustained by local appropriations.

The outlook for public health in the United States is encouraging. There is an increasing recognition of its economic and social importance as well as its bearing on individual happiness. The new sense of nationality which is being forced on us will accustom us more and more to taking the general rather than the individual point of view. We shall be driven to cooperate and to undertake public services on a new basis. It is, therefore, a time when the subject of training public health officers is peculiarly significant. It is to be hoped that the work will be developed not through institutional and local ambition, but with the welfare of the whole country in view.

It seems clear that not every university which has a medical school can provide a full course of public health training. It is desirable, therefore, that a few centers be recognized, and that for the higher types of training these centers be given the ample funds which are necessary for the right sort of education. This does not mean that in many places courses for public health nurses and inspectors may not be profitably introduced, or that in still others laboratory men may not be trained at least up to a certain point. Standards and ideals, however, should be set by a few institutions which have the resources which will enable them to establish genuine schools well equipped, properly manned, dominated by authoritative leaders, inspired by the public health point of view, and working in close fruitful relations with the public health agencies of the community, the state and the nation.

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Aridity of Indoor Atmospheres in Winter.—S. D. Flora, an observer of the United States Weather Bureau at Topeka, made a series of tests of the indoor and outdoor humidity in his office over a period of forty days, using the standard whirling type of psychrometer at 8, 12 and 4 p. m. each day. The room in which the indoor tests were made was said to be a well ventilated office room, heated by steam and kept at an average of 72 F. For the period named the average indoor relative humidity was said to be 23 per cent., the same as that of the desert in Death Valley, Calif., in the summer of 1891. The outdoor humidity in Topeka during the same period averaged 82 per cent. The average relative humidity during the driest month of the year at Yuma, Ariz., is 35 per cent.; for Santa Fe, N. M., 29 per cent.; for Pueblo, Colo., 38 per cent. Thus, as said in *Public Health Reports,* Feb. 23, 1917, the indoor air in heated houses and buildings is drier than that of the desert.

PUNCTURE HEADACHE *

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The methods of modern medicine have caused not a new disease, but an additional morbid state, namely, the headache and associated symptoms following puncture of the spinal canal and removal of cerebrospinal fluid.

This headache has become so common, and its cause is so well recognized, that the term "puncture headache" has become a colloquialism in the hospitals. It is not a serious condition, and it lasts but a short time, but it is a distinctly new thing in pathogenesis and neurology; hence it is proper to study it, describe it, and, having learned its natural history, to place it in the literature of our specialty. We may incidentally learn how to prevent it, and draw some inferences from its phenomena as to other forms of headache. For we hardly know the cause of any of our ordinary headaches so completely as we do that of this particular semeiological infant.

Symptoms.—The headache rarely begins until the day following the puncture, when the patient usually is allowed to get up. It may start, however, directly after operation or come on three days later, depending on the activities of the patient and the conditions of the cerebrospinal fluid circulation. The patient feels a diffuse, bilateral pain, rather severe over the upper brow, and perhaps somewhat less severe in the back of the head. Occasionally it is worse in the occipital region. The pain may be accompanied with nausea and even violent vomiting, and also with some giddiness, mental confusion and faintness. The symptoms are increased by active exercise, and usually are promptly relieved by lying down. The flatter the patient lies, the better he feels. There may be some changes in the pupils and in the blood pressure.

The condition lasts with remissions for from five or six days to two or three weeks. When the trouble lasts and is obstinate, there is an accompanying cerebral dysthesia and sense of confusion or giddiness, which may cause worry and alarm.

Etiology.—The symptom is more common in patients whose cerebrospinal fluid is negative, and in whom the fluid comes out under low pressure. In other words, the healthy cord reacts badly to puncture. It is more common and severe in young adults, in women, in persons of high-strung nervous temperaments, in the anemic and in the thin blooded. In acute conditions like poliomyelitis and meningitis, in which there is high pressure, puncture often relieves headache, especially in children. In advanced years, and when there is abnormal pressure to the spinal fluid, the reaction is less.

In diagnostic puncture the amount of fluid usually removed is from 4 to 10 c.c. It does not make much difference whether a small or large amount is removed within these limits, though some state that headache rarely occurs if the amount removed is very small and if the fluid is removed very slowly (I. Strauss). The headache results from the acute disturbance of the mechanics of the cerebrospinal fluid circulation. I am told that removal of the fluid from the cerebrospinal ventricles does not cause the headache, probably because in these cases the patients are kept quiet in the horizontal position.

There is no great difference whether the fluid when removed is under a plus or minus pressure within physiologic limits, i. e., from 5 to 8 mm of mercury. As matters go in a hospital, in about half the cases of lumbar puncture there is no headache reaction unless the patient is allowed to get up very early. At one time we thought patients did better if allowed to get up promptly on the day of puncture. This was found sometimes to work, but on the whole was not good practice.

Physiology.—The normal amount of cerebrospinal fluid at any one time is small, probably not over from 2 to 6 drams (from 8 to 24 c.c.); but with brain atrophies it increases in amount to 2 ounces or more.

Ordinarily it is secreted slowly and in small amount, although in fractures of the brain it has been known to drain away at the rate of 600 c.c. daily. The amount can be increased by compression of the abdomen, by horizontal position and by straining, that is, by forced expiration with the glottis closed. The tension is about 5 to 7.3 mm. of mercury, and is about the same as that of the capillaries.

Pathology.—We may suppose that the changes in pressure caused by puncture and removal of fluid take away the water pad of the brain, so that it rests unprotected on the bone, causing an irritation of the dural fibers of the fifth and occipital nerves. The fact of the instant relief caused by the horizontal position supports this view.

On the other hand, the choroid gland can ordinarily secrete in twenty-four hours much more fluid than is removed by puncture. Therefore it must be that the puncture either inhibits the activity of the gland, or causes some block in the normal flow. Most persons with headache feel better in the horizontal position. It is quite possible that in fatigue and toxic states the choroid plexus is disturbed in its functions, and there is a reduction or an excess of flow.

Prevention and Treatment.—The headache can usually be prevented by keeping the patient in a horizontal position for three or more days. After the headache occurs, the effective measure is to return the patient to bed. Possibly the very slow removal of the fluid in minimal amount (2 c.c.) may be effective. Abdominal compresses may also help.

Other Headaches.—Some interesting inferences can be drawn as to the pathology of other headaches from the phenomena of puncture headache.

The location of the pain in puncture headaches is much like that in neurasthenic, and in certain toxic and autotoxic headaches. In these the patient also is more comfortable if he lies down, and physical or mental exertion makes him worse.

Is it not possible that a good many headaches are due to defective action of the choroid gland, to an imperfect cerebrospinal fluid circulation? As stated before, the amount of cerebrospinal fluid is normally rather small, and secreted slowly. This fluid has a normal and steady flow from the lateral ventricles into the third and fourth ventricles through the foramen of Magendie and lateral recesses of the fourth ventricle to the subarachnoid space; thence the most of it passes into the villi of the dura and the venous sinuses and veins. There are various ways in which this flow might be disturbed. It seems to me that the puncture headache may have a genuine value in calling our attention to the pathology and physiology of this third system of circulation in the human body.

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THE AFTER-CARE OF INFANTILE PARALYSIS

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The problem of the treatment of the convalescent stages of infantile paralysis is definite, specific and undisputed. It is to restore the maximum ultimate efficiency to affected muscles. The present paper is a discussion of how this may best be brought about.

Our treatment of the acute stage of the disease has made great strides of late. Meddlesome therapeutics in the way of drugs, counterirritation and massage in the tender stage have been largely abandoned, the general practitioner is guarding against and preventing unnecessary deformity, and rest is being recognized as the best treatment at this time by the intelligent physician. In the later stage, too, an adequate and rational operative plan of treatment has been developed and is being practiced by most orthopedic surgeons. But in the convalescent stage, which may be assumed as lasting for about two years from the time when the tenderness disappears, little real change has been made in methods since the time when those of us now in middle life were medical students.

The treatment of this stage of the affection most in vogue in this country today is to employ massage and electricity, to use braces, and to allow walking when possible. The following quotation from an orthopedic textbook published in 1885 is representative of the view at that time and of today as well:

> But in these cases, after the deformity is corrected and an appropriate instrument applied, frictions, massage, electricity and instructing the patient, if old enough, to exercise frequent voluntary motion must for a long time be resorted to.

It may be well to inquire, therefore, if we cannot make more modern the treatment of the middle stage of this affection when the treatment of the early and late stages has been so radically changed in the last few years. This is the more important because during this period is determined in many cases the degree of recovery of the affected muscles. In no department of surgery does precise, long continued and common sense treatment have a more determining effect on ultimate function than here.

Certain fundamental facts bear strongly on the formulation of the treatment at this stage.

1. The existence of *tenderness* may be assumed to be evidence of the persistence of some degree of the acute process in the cord. The use of massage and manipulation while tenderness lasts will, as a rule, make it more acute and prolong it indefinitely. Theoretically it is not physiologic to irritate and stimulate the peripheral ends of nerves connected with acutely or subacutely inflamed nerve centers. No matter how long the tenderness may legitimately continue, active treatment should not be begun until it has practically disappeared. This event may be assumed to mark the end of the acute and the beginning of the convalescent stage.

2. *Muscular weakening* is much more common than total paralysis, the Vermont figures having shown that partial paralysis is nine times as common as is total paralysis. This must necessarily change our conception of treatment, for the condition is not to be regarded as a more or less hopeless loss of power, but as a muscular weakening with perhaps some total paralysis. If the paralysis were, for the most part, total and hopeless, we should resort to braces and not restrict activity, for there would be no use in so doing. But with a weakening rather than a total paralysis, it should obviously be our effort to strive to strengthen the weakened muscles and to allow no consideration to interfere with this effort.

3. *Spontaneous improvement* does not cease at the end of about six months, as we formerly believed, but continues for at least two years and probably longer, although it is more rapid in the first year than later. This fact is of importance in encouraging us to feel that we have an asset strongly in our favor during these two critical years.

4. *Fatigue* is a detrimental factor of the highest importance to convalescent muscles, and in weakened ones fatigue is brought about with surprisingly little activity. Fatigue of a seriously harmful character can be caused not only by walking too much, but also by the overuse of therapeutic exercises and especially by heavy or prolonged massage. These statements rest on quantitative data already published and on a series of observations on children under treatment when enforced inactivity has been necessitated by illness or operation. Not only may fatigue and overuse delay the favorable progress of convalescing muscles, but also it may lead to a permanent loss of returning power and to permanent and irremediable muscular stretching.

5. *Braces and apparatus* are not what one would desire to put on a weakened leg when one is striving to secure muscular development. They are heavy, they induce an unnatural use of the leg, they prevent free activity, and the bands and lacings constrict the muscle. On the whole they favor muscular atrophy; but there is no evidence to show that they increase shortening of the affected limb. Any one would grant that, other things being equal, a brace was undesirable. But more undesirable than the use of braces is the acquirement of deformity, the stretching of muscles, and the loosening of joints from not using them when necessary. The only statement to be made is that braces should not be used unnecessarily, but that they should be used when needed; that they are not in any way therapeutic, but protective and conservative, and that the so-called "brace treatment" of this stage of infantile paralysis does not exist, because to put on a brace is no more treatment of the disease than is the use of crutches in the treatment of fracture of the leg.

Having discussed these more or less fundamental considerations, we are now in a better position to formulate what should be the modern treatment of the convalescent stage of infantile paralysis.

Diagnosis.—The first requisite for adequate and scientific treatment in this as in other affections is an accurate diagnosis, and such a diagnosis in infantile paralysis demands an examination of every available muscle or muscular group in both arms, both legs, neck, back and abdomen. It must be determined which muscular groups are normal, which weakened and wholly paralyzed. The patient should first be made to walk if he can, as in walking muscular function can be observed and gross defects defined as in no other way. Children should be stripped naked, and adults should wear only a T bandage. Then the voluntary contractile power of the different muscles and muscle groups should be estimated by directing certain movements and seeing if there is response and whether that response is normal or weak. The stronger tests should be used first; next those, when the conditions of movement are easier, in which the weight of the member to be tested is partly eliminated by position; lastly, the lowest grades of muscular power may be detected by slinging the limb by means of a bandage. To find the faintest possible trace of power is of importance in prognosis. It must be remembered that muscles act in groups (synergically) and that the paralysis of one muscle alone is rare. In the case of babies, the voluntary activities of the child must be watched and reflex stimulation used to provoke the various movements with the child held in different positions. Such examinations are not accurate, and take much time.

In general an adequate examination under the most favorable conditions of cooperation and intelligence on the part of the patient will consume at least twenty to thirty minutes, and in the case of young children from half an hour to an hour. A quantitative test in older children by means of the spring balance method is desirable but not easily available, as its use requires two highly trained assistants.

Developmental Treatment.—Warm saline baths, which have probably been in use toward the close of the acute period, should be continued daily. The affected limbs should never be chilled but warmly protected. Outdoor air and a general physical examination are desirable, as some degree of cardiac involvement is not unknown. Attempts to prevent deformity should continue.

Recumbency and Activity.—Prolonged recumbency is not desirable on general grounds, and long continued sitting favors the formation of the commonest contractions, flexed hips, flexed knees and dropped feet. These should be carefully watched for, especially the former. A large amount of creeping is undesirable in children with good hip flexors and weak hip extensors, as it favors hip flexion deformity by the overdevelopment of the muscles used in creeping. The upright position is the normal one for human beings, and the instinctive effort to balance in this position is, I believe, desirable, by stimulating to activity various muscles not otherwise easily stirred to action. In the case of intelligent parents, when the upright position cannot be assumed otherwise, it is well at the end of two or three months to furnish simple braces, by means of which balance may be practiced and a few steps of walking allowed each day. The braces should be worn only during this time. The children of ignorant parents should not be supplied with braces as soon as this, and young children must needs be kept recumbent.

The surgeon assumes a serious responsibility who allows walking to any extent in the first year, except in cases which are too grave to warrant much hope of recovery; and even in these cases he must be very skilled in prognosis if in the first months after the attack he can forecast the future of all such cases. The avoidance of fatigue is one of the keystones of our arch.

Probably the most dangerous cases, so far as muscular recovery goes, are the cases with paralysis so slight that the patients walk with fair facility and a slight or moderate limp. It is very difficult to induce the parents to keep these children off of their feet for from three months to a year, which must often be done if complete recovery is to be tried for, and these are the cases in which such recovery may often be obtained.

Apparatus and Braces.—Apparatus and braces should be used sooner or later if in attempted standing or walking the upright position is impossible, or if in such position an abnormal attitude is assumed in ankle, knee or spine. Deltoid weakening or paralysis should be treated by a platform splint to elevate the arm at shoulder level or less effectively by a sling.

Abdominal weakening is of all the paralyses the one most frequently overlooked and one capable of doing much permanent harm. It is extremly common and, as a rule, easily treated by a supporting cloth corset.

Deformity.—Fixed deformity, if present, should be removed by stretching, tenotomy or fasciotomy, and no treatment will be of much avail until such deformity is corrected.

There are three therapeutic measures addressed directly to securing muscular improvement:

The first of these, *massage,* stimulates circulation, tends to preserve muscular tone, and promotes the removal of waste products. Properly controlled, it is of use; in excess or unskilfully given, it is dangerous and harmful.

The second, *electricty,* depends for its vogue largely on tradition. By some it is advocated, by others decried. In mild cases it is undoubtedly harmless and perhaps beneficial. On the whole, it has done great harm and caused many needless cripples, because it has been administered on a large scale and often very loosely given, while methods of treatment universally acknowledged as useful have not been used; and the parents have been lulled into a false security, thinking that adequate treatment was being pursued, while invaluable time was being lost and disabling deformities acquired.

Muscle Training.—The third of these measures, in my opinion, is the keynote of modern treatment of infantile paralysis. It is an application of physiology and anatomy to compensation for a pathologic lesion. Every muscle is connected with several nerve centers, every nerve center controls more than one muscle. The predominance of partial paralysis shows that partial rather than total destruction of nerve centers occurs in nine out of ten instances. The method advocated attempts to send an impulse from brain to muscle by establishing through such partially destroyed centers a new route which it tends to find for itself by constant repetition of attempted muscular contraction. Not only is the opening of new paths for efferent impulses highly desirable, but also the repeated contraction of each weakened muscle is of therapeutic value.

The order is given to use a certain muscle and, if necessary, the patient is aided by the surgeon in performing the prescribed movement. This is repeated several times at intervals of a few seconds but never to the point of fatigue. In the stronger muscles the movement should be performed without assistance by putting the limb in a position which gives a favorable leverage for the motion. Muscle training is harmful if inaccurately carried out, because a child inevitably tries to use the strong muscles in any movement rather than the weak, and if they are continually exercised they become stronger while the weak remain as they were and the muscular balance is made worse and deformity results. This is one reason why an accurate muscular diagnosis is so essential. More than this, a knowledge of functional anatomy is required on the part of the one who prescribes the exercise. This required knowledge is not, as a rule, possessed by the ordinary masseur or masseuse, and the formulation of the exercises must be done by the physician or by a highly trained assistant.

The chief obstacle to the successful employment of this treatment is to make it understood that it cannot be successfully carried out without a precise knowledge and special training which is not common. The benefits of muscle training may be obtained at a late stage of the affection, in one recorded case a gain of 125 per cent. in the gluteus medius muscle having been obtained in a period of six weeks, thirty-six years after the attack.

SUMMARY

The requirements of the modern treatment of the convalescent stage of infantile paralysis as advocated in this paper may be thus summarized:

An accurate muscular diagnosis is an essential prerequisite to treatment.

No active treatment should be begun until tenderness has disappeared.

The upright position with restricted walking has certain advantages over prolonged inactivity in suitable cases. Fatigue is dangerous.

Braces are conservative and protective, and not therapeutic.

Massage, electricity and muscle training are the measures in general use to bring about improvement in the muscles. Of these, the last named rests on the best physiologic and pathologic basis, and must be carried out with great accuracy to be effective.

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AN UNUSUAL BLOOD CRISIS IN HEMOLYTIC ICTERUS

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Hemolytic icterus has been so extensively discussed recently that only the salient features of the disease will be mentioned. In 1900 Minkowski[1] first singled out chronic hemolytic icterus, and several years later Chauffard[2] discovered the characteristic increased fragility of the red blood cells in hypotonic salt solutions. The brilliant results following splenectomy in this disease, as first pointed out by Banti,[3] have given a new interest to the study of chronic jaundice.

Chronic hemolytic icterus, or chronic family jaundice, is ordinarily hereditary, passing to successive generations through either the male or the female line, and is generally familial, many children in the same family or generation being afflicted. There are other instances, such as the one cited here, in which a single isolated congenital case appears. Finally hemolytic icterus may be acquired in adult life following some acute illness.

The jaundice dates from birth, or is noticed during childhood, and remains throughout life. The nutrition and growth of these subjects is unimpaired, and there are none of the disagreeable manifestations which accompany obstructive jaundice, such as pruritus, bradycardia and melancholia. Enlargement of the spleen is almost constantly present, and when this is very marked produces discomfort mechanically. Enlargement of the liver is unusual. Besides the jaundice and splenic tumor, there is present a varying grade of anemia with normal color index. The urine and blood plasma show the presence of urobilin[4] with the absence of bile salts. The red blood cells are less resistant to hypotonic salt solutions. The feces show urobilin and are highly colored, in contradistinction to the light color in obstructive jaundice.

Clinically these subjects do not consider themselves ill, except during their "bilious attacks," when the jaundice deepens, the spleen enlarges, and the anemia increases. These attacks of acholuric jaundice, depending on critical hemolysis, occur every few months or every year or so. After headache for a number of days, nausea and vomiting, with possibly diarrhea, supervene. There is no pain in the absence of gallstones, and usually no fever. Within a week or two the patient is in his usual state of health.

We have recently seen one of these attacks of acholuric jaundice of such severity as to produce a profound and unusual blood crisis:

REPORT OF CASE

J. D. G., man, aged 25, white, married, waiter, seen, Nov. 9, 1916, with Dr. Reid Patterson, to whom we extend thanks for the privilege of reporting the case, had been having headache for three days previous to November 5, when he fainted with blindness and weakness. November 6, 7 and 8, he had had steady nausea and vomiting without pain, and without temperature above 99.6 by axilla. On the morning of November 8, somnolence set in, and when he was seen on the afternoon of November 9, this had become deep stupor. The temperature was 101 by axilla, pulse 126, respiration 30. Whitening of the mucous membrane and deepening of the jaundice had progressed steadily. The man was well nourished, with white mucous membranes and finger nails, and bright lemon colored skin and sclerae. The eyes, throat, heart, lungs, glands and reflexes were negative. The abdomen was soft, and the liver dulness normal. The spleen was four fingerbreadths below the costal margin.

The patient had been persistently jaundiced since 6 years of age; none of his relatives had been so afflicted. His past history brought out only these "bilious attacks," recurring once or twice a year, and an indefinite attack of malaria five years previously. The blood examination revealed: hemoglobin, 30 per cent. (Tallqvist), with 520,000 red cells and 19,600 white cells. The differential count revealed polymorphonuclears, 82 per cent.; small mononuclears, 14.5 per cent.; large mononuclears, 3 per cent.; eosinophils, 0.5 per cent.; no plasmodia. The red cells were of good color with little variation in size, shape or staining reactions. No blasts could be found. Platelets were plentiful. The bleeding time was diminished. The color index was 2.9.

The next day the stupor was clearing up and the temperature varied from 100 to 102. November 11, the patient was mentally clear, taking food, and desirous of returning home The urine was negative for albumin, sugar, bile and urobilin (ether extract, alcohol method). Hemoglobin was 25 per cent. (Tallqvist). The red cells hemolyzed after standing several hours in the mixing pipet. The white count was 95,000; polymorphonuclears, 67.5 per cent.; small mononuclears, 17 per cent.; large mononuclears, 3.5 per cent.; eosinophils, 0 per cent.; neutrophilic myelocytes, 12 per cent.; eosinophilic myelocytes, 0 per cent.; no plasmodia. The individual red cells were of good color, with little variation in size and shape, but basophilic staining marked. There were 33,000 erythroblasts per cubic millimeter, one third being macroblasts. The spleen now filled the whole left upper quadrant, being 11 cm. below the costal margin.

November 12, the patient was mentally clear, took food well, and was anxious to return to work. The temperature was declining, the jaundice clearing somewhat. Hemoglobin was 45 per cent. (Tallqvist); red cells, 760,000; white cells, 67,000; polymorphonuclears, 87 per cent.; small mononuclears, 8 per cent.; large mononuclears and eosinophils, 0 per cent.; neutrophilic myelocytes, 5 per cent.; no plasmodia. There was considerable variation in size, shape and staining reactions of the red cells. There were 26,364 blasts per cubic millimeter. The ratio of normoblasts to macroblasts was 18:1. Clotting time was reduced one fourth.

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[1] Minkowski, O.: Verhandl. d. inn. Med., 1900.

[2] Chauffard, A.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1901, **18**, 444; Semaine méd., 1907, **27**, 25.

[3] Banti, referred to by Elliott, C. A., and Kanavel, A. B.: Surg., Gynec. and Obst., 1915, **21**, 21.

[4] Tileston, W., and Griffin, W. A.: Am. Jour. Med. Sc., 1910, **139**, 847.

November 13, the temperature was normal, the white count 12,000. There was no urobilinuria (Ehrlich's test).

November 14, the white count was 11,800; polymorphonuclears, 63 per cent.; small mononuclears, 32 per cent.; large mononuclears, 0 per cent.; eosinophils, 5 per cent.; myelocytes, 0 per cent.; blasts, 826 per cubic millimeter; no macroblasts. The red cells showed little variation in size and shape, and but slight polychromatophilia.

November 15, the red count was 1,200,000. Fragility tests with whole blood revealed hemolysis starting definitely at 0.72 per cent. and being complete at 0.38 per cent. salt solution in two hours. Stained smear revealed 1 per cent. myelocytes with 9 normoblasts per hundred white cells. There were no macroblasts. The hemoglobin was 35 per cent. Although weak, the patient refused to remain longer in the hospital.

December 3, the patient reported that he was a little weak in the knees yet, but felt fine. He had gained 10 pounds, and his jaundice was so slight as not to be noticeable without close examination. The hemoglobin was 70 per cent.; red count, 3,040,000; color index, 1.3; white count, 11,650; polymorphonuclears, 64 per cent.; small mononuclears, 22 per cent.; large mononuclears, 3 per cent.; eosinophils, 9 per cent.; basophils, 2 per cent.; no myelocytes, no nucleated reds; great variation in size and shape of red cells, but no basophilia.

December 9, the hemoglobin was 75 per cent., and the red count 4,000,000.

LEUKANEMIA

Based on quantitative relationships of the cellular elements of the circulating blood, the blood diseases have been more or less satisfactorily divided into (*a*) the anemias, in which reduction in number and alteration in character of the red cells are characteristic, and (*b*) the leukemias, in which increase in the normal white cells and the appearance of abnormal white cells are dominant findings.

This distinction has served a useful purpose, and is *a priori* reasonable since, for the most part, pathologic agencies, bringing about alterations in the cellular elements of the blood, are either hemolytic, affecting the red cells, or productive, exerting a selective action on the primary leukoblastic tissues. From clinical reports, however, which have appeared from time to time, it is becoming increasingly evident that a combination of these two influences may exist in one and the same case, simultaneously or consecutively. The apparent result of such combined action is to be seen in cases presenting the red count of pernicious anemia and the white count of leukemia. Such findings are not unusual as a terminal event in both pernicious anemia and the leukemias. The difficulty of classifying cases with such a combined blood picture led von Leube to suggest the term "leukanemia." He reported this combined picture in a boy of 10 who suffered apparently from a combination of myelogenous leukemia and pernicious anemia, running a very acute course of about three weeks, with clinical symptoms of an acute infectious disease with hemorrhages (Teeter).[5] The blood showed a red count of 266,000, with 10,000 leukocytes; polymorphonuclears, 44 per cent.; lymphocytes, 40 per cent.; neutrophilic myelocytes, 13 per cent.; large mononuclears, 2 per cent., and many nucleated reds, 70 per cent. of which were megaloblasts. At necropsy the bone marrow was found hyperplastic and red, with myeloid changes in spleen and liver.

Teeter[5] reports a case similar to ours:

A girl, aged 6 years, was taken suddenly ill with malaise, nausea, headache and fever. The second day there was vomiting and fever, no chill, no pain, but great restlessness. The third day she passed a pint of bloody urine and became very anemic and slightly jaundiced. On the fourth day there was a pericardial friction sound, enlargement of liver and spleen, delirium, no vomiting, and neither blood nor bile in the urine. The blood showed hemoglobin, 20 per cent.; red cells, 1,530,000; white cells, 132,000, with 20,000 nucleated red cells per cubic millimeter, 10 per cent. of which were megaloblasts; polymorphonuclears, 58.75 per cent.; small and large lymphocytes, 19.5 per cent.; unclassified, 6 per cent.; mononuclears and transitionals, 4.25 per cent.; basophils, 0.5 per cent.; myelocytes, 10.75 per cent., and Tuerck's cells, 0.25 per cent. By the ninth day the temperature had become nearly normal and the child was much better, the blood showing hemoglobin, 20 per cent.; red cells, 1,500,000; white cells, 36,000, with 5 per cent. myelocytes and 10,000 nucleated red cells, of which 3 per cent. were megaloblasts. Within two weeks the patient was rapidly approaching normal again.

The term "leukanemia" has also been applied to conditions in which the combined blood picture of pernicious anemia and lymphatic leukemia was present.

Luce's case showed a blood picture of hemoglobin, 30 per cent.; red cells, 1,200,000; white cells up to 81,000, with polymorphonuclears, 46 per cent.; large lymphocytes and nongranular myelocytes, 49 per cent., and small lymphocytes, 4 per cent. (Teeter).

SUMMARY OF BLOOD COUNTS

Cases	Hemoglobin	Red Cells	Color Index	White Cells	Differential Count						Erythroblasts	Normoblasts	Megaloblasts
					Polymorphonuclears	Small Mononuclears	Large Mononuclears	Eosinophils	Neutrophilic Myelocytes	Myeloblasts			
Authors:													
Nov. 9	30	520,000	2.9	19,600	82	14.5	3	0.5	..	..	......	..	..
Nov. 11	25	......	..	95,000	67.5	17	3.5	..	12	..	33,000	66	33
Nov. 12	45	760,000	2.9	67,000	87	8	..	..	5	..	26,364	95	5
Nov. 13	..	......	..	12,000	..	..	..	..	..	..	......	..	..
Nov. 14	..	......	..	11,800	63	32	..	5	..	..	826	100	..
Nov. 15	35	1,200,000	1.5	.....	..	..	..	..	..	..	......	100	..
Dec. 3	70	3,040,000	1.3	11,650	64	22	3	9	..	..	......	..	..
Dec. 9	75	4,000,000	0.9	.....	..	..	..	..	..	..	......	..	..
Leube's	..	266,000	..	10,000	44	40	2	..	13	..	Present	..	70
Teeter's: 4th day	20	1,530,000	0.7	132,800	59	19	4	..	10	..	20,000	90	10
9th day	20	1,500,000	0.7	36,000	56	20	14	1	5	..	10,800	94	3
Luce's	30	1,200,000	1.2	81,000	46	4	..	..	..	49	......	..	..
Sappington's:													
Nov. 28	18	1,300,000	0.8	7,800	22	66		0.8	..	12	3,356	38	62
Dec. 16	14	850,000	0.8	163,000	9.2	3.6		..	..	87.2	18,267	58	42
Dec. 20	..	1,030,000	..	298,000	4.2	7.2		..	..	88.6	29,334	40	60

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[5] Teeter, C. E.: Recovery from Leukanemia, The Journal A. M. A., Feb. 16, 1907, p. 608.

Sappington[6] reports the case of a man, aged 46, who after anemia for six months entered the hospital with hemoglobin, 18 per cent.; red cells, 1,130,000; white cells, 7,800. The differential count revealed: polymorphonuclears, 22 per cent.; lymphocytes, 66 per cent.; eosinophils, 2 per cent.; myeloblasts, 11.8 per cent. There were 3,356 erythroblasts, of which 62 per cent. were megaloblasts. The temperature ranged from 99 to 101. Death occurred three weeks later, with red cells, 1,030,000; white cells, 298,000; myeloblasts, 88 per cent.; nucleated red cells, 29,334; megaloblasts, 60 per cent. The diagnosis was acute myeloblastic leukemia.

It is interesting to find in hemolytic blood disease, such as the case here reported, this combined blood picture of pernicious anemia and myeloid leukemia occurring as a so-called "blood crisis." Although transitory, the picture of "leukanemia" was perfect in every detail. As the usual paroxysm of hemolysis in these chronic jaundice cases is either a good deal less rapid or less intense, the unusual blood crisis seems to have been dependent on the rapidity of the hemolysis or on the extent to which the red cells were destroyed.

THE NUTRITIONAL VALUE OF THE BANANA *

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That fruits are entering the dietary of man in this country more largely than ever before has been pointed out editorially in The Journal.[1] This is of particular interest in view of the increasing importance that is being attached to the rather intangible "accessory food substances" in which fruits are supposed to be especially rich. It was with these facts in mind that a study of the ripening, composition and digestibility of the banana was undertaken. Fruits are frequently looked on primarily from the standpoint of the accessory substances they contain; but it is well to bear in mind in the case of the banana that its caloric value is very high, in fact higher than that of any other common fruit in its natural state. Furthermore, bananas may be readily obtained at any time of the year, and at a cost per calory about half that of other fruits. The condition in which fruits are sold in many of our great cities is certainly far from sanitary, but the peel of the banana affords it almost complete protection in this respect. The banana has been called "the poor man's fruit," and the facts mentioned above would appear to justify this appellation.

Our nutritional studies on the banana indicate that, when thoroughly ripe, it is one of our most valuable fruits; but there are many other reasons why this subject commands interest from a physician's point of view. Our experience indicates, for example, that bananas may be used to advantage in the dietaries of nephritic patients showing nitrogen retention, for the reason that ripe bananas contain small amounts of protein and large amounts of readily assimilable carbohydrates (glucose, fructose and sucrose). The fact that the banana yields these different sugars is of considerable interest for, as Higgins[2] has pointed out, levulose and sucrose appear to be burned more promptly when taken on an empty stomach than glucose, suggesting that they play a slightly different rôle in metabolism.

Raw fruits can be consumed to advantage only when they are thoroughly ripe, and the banana is certainly no exception to this rule. Perhaps the worst criticism that can be made with regard to bananas is that they are frequently sold and eaten when they are not thoroughly ripe. This is in part due to a popular misconception that bananas should not be eaten after the appearance of brownish tints on the peel. The yellow color of the skin is not in itself sufficient evidence of ripeness; in fact, under certain climatic conditions the fruit may be entirely yellow and still be so underripe that its consumption in large amounts would be followed by discomfort. When the yellow of the peel takes on a golden hue and begins to speckle with brown

TABIE 1.—CHANGES IN THE COMPOSITION OF THE BANANA DURING RIPENING *

Days off Boat	Relation of Peel to Pulp	Appearance of Peel	Reducing Sugar in Terms of Glucose	Sucrose in Terms of Glucose	Total Sugar in Terms of Glucose	Starch in Terms of Glucose
2	40	Very green................	0.55	1.20	1.75	
4	38.5	Greenish yellow with pea green tip and edges, bitter flavor................	1.17	4.60	5.77	15.62
6	35.5	Yellow except extreme edges and tip, beginning of golden yellow, bitter flavor almost gone........	2.88	12.52	15.40	7.53
8	31.5	All yellow except extreme of tip, greenish cast to edges....................	4.09	11.91	16.00	5.02
12	20.1	Golden yellow, greenish cast on edges, occasional brown specks, no herbaceous flavor................	5.35	11.72	17.07	
14	25.7	Full golden yellow with brown specks, strong amyl acetate flavor........	6.88	11.72	18.60	3.02
15	25.5	Patches of light brown shades....................	7.08	11.10	18.78	0.71
16	20.6	Largely light brown (incubated 24 hours)............	9.09	7.91	17.00	0.00

* The rate of the several ripening processes appears to differ somewhat with the season. The present analyses were made during the winter months. Other analyses show that ripening proceeds more rapidly and more completely during the summer. For further details the reader is referred to Gore, H. C.: Jour. Agric. Research, 1914, **3**, 187.

TABLE 2.—COMPARATIVE COMPOSITION OF SOME COMMON FRUITS *

Fruit	Protein, per Cent.	Fat, per Cent.	Carbohydrate, per Cent.	Calories per Pound	100 Calory Portion, Gm.
Bananas...........	1.3	0.6	22.0	447	101
Grapes............	1.3	1.6	19.2	437	104
Plums..............	1.0	...	20.1	383	118
Cherries...........	1.0	0.8	16.7	354	128
Pears...............	0.6	0.5	14.1	288	158
Apples..	0.4	0.5	14.2	285	159
Oranges............	0.8	0.2	11.6	233	195
Peaches...........	0.7	0.1	10.8	213	213
Lemons............	1.0	0.7	8.5	201	226
Muskmelons........	0.6	...	9.3	180	252
Strawberries.......	1.0	0.6	7.4	169	269
Watermelons.......	0.4	0.2	6.7	136	332
Potatoes...........	2.2	0.1	18.4	378	120
Sweet potatoes.....	1.8	0.7	27.4	558	81

* Taken from data compiled by Sherman, H. C.: Chemistry of Food and Nutrition, New York, 1912, p. 319; from Bull. 28, Office of Exper. Stations, U. S. Dept. Agriculture.

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[6] Sappington, S. W.: Am. Jour. Med. Sc., 1916, **152**, 238-243.

* From the Laboratory of Pathological Chemistry, Department of Laboratories, New York Post-Graduate Medical School and Hospital.

[1] The Ripening of Apples, editorial, The Journal A. M. A., Feb. 26, 1916, p. 657.

[2] Higgins, H. L.: Am. Jour. Physiol., 1916, **41**, 258; The Rapidity with Which Sugars Become Available for Metabolism, editorial, The Journal A. M. A., Oct. 28, 1916, p. 1306.

shades, it may safely be considered fully ripe. The spread of the brown coloration does not condemn the fruit as overripe so long as the pulp inside shows no signs of fermentative decomposition.

Somewhat more definite information on this point may be obtained from Table 1, showing the composition of the banana at various stages of ripeness. It will be noted that with the progressive increase in the sugar content of the banana, water is gradually absorbed from the peel, and that the percentage of the peel is therefore an excellent index as to its ripeness.

TABLE 3—ASH CONSTITUENTS OF SOME COMMON FRUITS*

Fruit	Ash Constituents of Fruits in Percentage of the Edible Portion							
	CaO	MgO	K_2O	Na_2O	P_2O_5	Cl	S	Fe
Bananas.. .	0.01	0.04	0.50	0.02	0.055	0.20	0.013	0.0006
Grapes ...	0.024	0.014	0.25	0.03	0.12	0.01	0.021	0.0013
Plums	0.025	0.02	0.25	0.03	0.055	0.01	..	0.0005
Cherries	0.03	0.027	0.26	0.03	0.07	0.01	.	0.0005
Pears .. .	0.021	0.019	0.16	0.03	0.06	.	. ..	0.0003
Apples. ... ,	0.014	0.014	0.15	0.02	0.03	0.004	0.005	0.0003
Oranges ...	0.06	0.02	0.22	0.01	0.05	0.01	0.013	0.0003
Peaches ..	0.01	0.02	0.25	0.02	0.047	0.01	0.01	0.0003
Lemons	0.05	0.01	0.21	0.01	0.02	0.01	0.012	0.0006
Muskmelons ..	0.024	0.02	0.283	0.052	0.035	0.041	0.014	0.0003
Strawberries	0.05	0.03	0.18	0.07	0.064	0.01	..	0.0009
Watermelons	0.02	0.02	0.09	0.01	0.02	0.01		
Potatoes ...	0.016	0.036	0.53	0.025	0.14	0.03	0.03	0.0013
Sweet potatoes	0.025	0.02	0.47	0.06	0.09	0.12	. ...	0.0005

* Sherman, H. C. Chemistry of Food and Nutrition, p. 332

From an inspection of Table 2 it is apparent that bananas are decidedly superior to most of the other common fruits from the standpoint of their caloric value, and not inferior in other respects except possibly in mineral constituents (Table 3). In fact, as regards caloric content the banana is directly comparable with the potato and sweet potato.

The only criticism that can be made regarding the composition of the banana has to do with its salt content. Relative to the calcium the content of magnesium is high. High figures are also found for potassium and chlorin. It will be noted, however, that this relationship is similar to that found in the potato, except that here the magnesium and potassium are combined with phosphorus rather than with chlorin. The high chlorin content would be a possible objection to the use of bananas in quantity in cases of nephritis with edema, but it is generally just this type of case in which the nitrogen retention is low, and there is no great necessity for a restriction in the protein intake. It is of interest that both the banana and the potato yield an alkaline ash and are therefore antagonistic to the development of an acidosis.

As will be noted in Table 4, the utilization of the carbohydrates of the ripe raw banana is excellent—about as good as that of the cooked foods employed in the controls. On account of the lower fat content of the diet on the banana days, more carbohydrate was used to obtain a similar caloric intake. An idea of the type of diets employed may be obtained from Diet 2, given in Table 5. Both the control and the banana diets were given for three days or more.

For the various carbohydrate estimations, both in the banana and in the feces, the simple colorimetric

TABLE 4—UTILIZATION OF THE CARBOHYDRATE OF THE BANANA

Subject	Age	Sex*	Clinical Diagnosis	Period	Carbohydrate Intake, Gm.	Carbohydrate in Feces, in Terms of Glucose		Apparent Carbohydrate Utilization, per Cent.	Remarks
						Per Cent	Gm		
1 A. R	..	♂	Normal	Control	266	1.6	1.2	99.6	
				Banana	334	4.1	4.2	98.8	
2 F. C.	7	♂	Physiologically normal	Control	210	1.8	4.1	98.1	
				Banana	320	2.8	5.6	98.3	
				Control	210	1.5	2.6	98.8	
3 A. R	7	♀	Rheumatism with valvular lesion	Control	210	1.4	3.1	98.5	
				Banana	320	2.8	8.6	97.3	
				Control	210	1.2	3.2	98.7	
				Banana	320	2.8	7.0	96.8	
4 S. T	37	♂	Duodenal ulcer	Control	185	1.0	0.4	99.8	Carbohydrate utilization practically the same during banana periods as during control periods
				Banana	261	1.3	0.5	99.8	
5 M. R	47	♂	Nephritis	Control	154	1.2	2.6	98.3	
				Banana	180	0.8	2.9	98.4	
				Banana	180	2.4	3.0	98.4	
6 C. O.	30	♂	Tuberculosis	Control	185	0.5	1.2	99.3	Note the improvement in the utilization of the banana as the fruit became more ripe; better than controls in Period 4
				Banana	261	1.9	5.6	97.9	
				Banana	261	1.1	2.3	99.1	
				Banana	261	2.9	0.9	99.7	
				Control	185	0.5	1.9	99.0	
7 R. V	60	♂	Cardionephritis	Control	154	0.8	0.6	99.6	
				Banana	180	1.6	1.3	99.4	
8 J. O	43	♂	Cardionephritis	Control	316	0.5	1.1	99.6	
				Banana	165	0.9	1.4	99.3	
				Control	154	1.4	5.4	98.3	
				Control	154	0.9	6.6	95.7	The poorer utilization of the carbohydrate in Control Period 4 and Banana Period 5 was due to diarrhea
				Banana	180	2.4	8.2	95.8	
				Banana	180	1.6	3.5	98.2	
9 K. F	54	♀	Acute rheumatism	Control	154	1.0	0.8	99.5	Patient constipated, particularly so during control period
				Banana	180	2.3	2.9	98.6	
10 H. M.	54	♂	Cardionephritis	Control	185	...	1.8	99.0	Note poor utilization with partially ripe fruit
				Banana					
				Yellow	261	...	13.5	95.0	
				Golden	261	...	7.8	97.0	
11 G. S	49	♂	Nephritis	Control	185	2.3	3.7	98.0	
				Banana					
				Golden	261	2.3	2.4	99.2	
				Yellow	261	6.6	12.6	95.7	

* In this column ♂ denotes male and ♀ female

method employed by Lewis and Benedict[3] for blood sugar was utilized in somewhat modified form. A description of the technic used in this connection will be given elsewhere.

It is a well known fact that raw starch is poorly utilized, and it seems evident from the data in Table 4 that banana starch is no exception to this rule, since with thoroughly ripe fruit much less starch is present in the stools, microscopically as well as chemically. That considerable starch may be excreted in the feces when the bananas are not fully ripe is evident from the data on Subjects 10 and 11. It may be noted that the bananas sold in the market are frequently less ripe than the fruit employed in these two experiments. When bananas are fully ripe, however, the utilization of the carbohydrate is excellent.

One subject consented to take unripe bananas, but at the end of the second day suffered considerable discomfort and discontinued the experiment, unfortunately without saving the stools for analysis. In none of the experiments here tabulated, however, with the possible exception of Case 3, were any discomfort or ill effects noted from the banana diet, and the same might be said of a larger number of experiments not reported. On the last day in Case 3 there was a distaste for the bananas, and they were consumed only after urging. Subject 1 lived on a bread and milk diet for one week and on bananas and milk for a similar period. The subjective sensations experienced were much more favorable to the banana and milk than to the bread and milk diet.

TABLE 5.—DIET 2

Control Diet 2	Grams or C.c.	Calories	Starch, Gm.	Protein, Gm.
Morning:				
Cooked cereal	150	93	19.2	2.75
Bread	30			
Milk	300			
Noon:				
Cream soup	260	199	15.7	6.20
Baked potato	200	225	51.2	5.44
Bread	30			
Cocoa (½ water and ½ milk)	200	125	....	3.30
Evening:				
Steamed rice	100	87	19.1	1.84
Bread	20			
Milk (½ 18.5 per cent. cream)	300			
Corn starch blanc mange	150	199	33.6	4.34
		928	138.8	23.87
For the day in bread		233	47.4	8.37
milk		593	.....	18.8
butter and sugar		210		
		1,964	186.2	51.0
Banana Diet 2				
Soup, bread, butter and sugar as above 200 c.c. milk for the morning and 300 c.c. for the evening, and 300 gm. of mashed ripe bananas with each meal				
Parts as above		987	63.1	31.1
Bananas, 900 gm.		979	198.0*	13.5
		1,966	261.1	44.6

* Total carbohydrate.

SUMMARY

Bananas have a higher caloric value than any of our other common fruits. Unlike most other fruits, they are always in season.

When fully ripe, that is, when the starch has been almost completely changed to sugar, the experiments here reported show that the carbohydrates of the banana are well absorbed from the intestine. As sold in the market, however, bananas are frequently not sufficiently ripe to be consumed to advantage immediately; and it would seem that gastro-intestinal disturbances when attributed to the banana were referable to this cause. It may be said in general regarding our own experiments that no ill effects, discomfort or distaste were noted even after the consumption of large quantities of the ripe fruit for several days.

Much larger quantities of sugar (glucose, sucrose, levulose) may be given in the form of banana than as pure sugar (sucrose, glucose) without producing gastro-intestinal disturbances.

The composition of the banana and the potato shows an interesting similarity both as regards total carbohydrate and the amounts of the different mineral constituents. While the banana can hardly be regarded as a potato substitute, the fact that it has practically the same caloric value as the potato is worthy of note.

Of even greater importance is the fact that bananas may be eaten uncooked. This is of interest in view of the increasing significance that is being attached to the thermolabile "accessory food substances."

The banana would appear to be a particularly valuable food to employ in the dietetic treatment of nephritic patients with nitrogen retention. Very satisfactory results have been obtained in the rather mild cases of nephritis here reported. So long as the patients exhibit no distaste for the fruit, there would seem to be no reason why bananas should not be employed in considerable quantity. We hope to report in the near future results obtained with this form of diet in cases of advanced nephritis.

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[3] Lewis, R. C., and Benedict, S. R.: Jour. Biol. Chem., 1915, **20**, 61. Myers, V. C., and Bailey, C. V.: Ibid., 1916, **24**, 147.

MODE OF ABSORPTION OF MERCURY IN THE INUNCTION TREATMENT OF SYPHILIS

PRELIMINARY REPORT *

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The question as to the efficiency of inunctions and just how they exert their effect is an old one. There are those who believe that mercury in an appreciable quantity is rubbed into and through the skin, and thus produces its therapeutic effect, and those who teach that the therapeutic value lies chiefly, if not solely, in its volatilization and in its inhalation through the respiratory system. A third conception accepts both absorption and inhalation as occurring. In the light of investigation this is the most probable view.

Let us consider the facts which bear directly on these opposing views. Those who oppose the idea that mercury can be pushed through the unbroken skin contend that:

> The skin is an impervious membrane covered by an impervious protective waxy substance.
>
> It is essentially an excretory organ, and the physical forces operating within it, namely, the excretion of the sweat and sebum, would be against the absorption of any foreign substance.

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* President's address, read before the Chicago Dermatological Society, Jan. 16, 1917.

The intercellular epithelial bridges and the basement membrane furnish in the unbroken skin an impassable barrier to the absorption of a heavy metal, even so finely divided as is mercury in the form of a salve.

It is impossible to say after a thorough inunction that the skin has not been traumatized so that it is histologically unbroken.

Absorption, if it occurs through the skin, does so through breaks in its continuity.

The advocates of the volatilization theory point further to the facts that:

Mercury, having a high vapor pressure, is easily volatilized.

For this reason it is spread over a warm surface and over a large surface so that it may be more easily vaporized.

The form of mercury which is used, the mercurial ointment (unguentum hydrargyri), is that form which is most volatile.

Occasionally those who are in the same rooms in which inunctions are given have been known to be mercurialized to the point of salivation.

Those who believe in the absorption of mercury through the skin advance in favor of this view that:

Other substances, such as lithium, sodium borate and iodin, after application on the skin, have been found in the urine.

The cells of the epidermis do not form a barrier to the absorption of mercury.

The basement membrane is not a homogeneous structure.

Following inunction, mercury has been found in the sebaceous glands and in the ducts of the sweat coils, from which absorption into the lymphatics would easily be possible.

The results of experiments with other substances applied to the surface of the skin, in which such substances have been found in the urine and feces, are not conclusive evidence of the absorption through the unbroken skin. In this connection it may be mentioned that whereas such substances as sodium borate and lithium have been found in the urine by certain investigators, others of equal ability have failed to find them. The immersion of the hand or foot in a fluid substance containing a chemical, and the detection thereafter of the chemical substance in the urine is not conclusive evidence that this substance has passed through an unbroken epidermis. The feet and hands are practically invariably traumatized. The slightest break in the skin in the form of a fissure or a cut, however small, leads to a degree of absorption far greater than would be possible through the unbroken skin if this membrane could really absorb.

No one will deny that mercury, a drug with a high vapor pressure, can be and probably is to a certain extent absorbed and active therapeutically by inhalation. In this connection one has merely to recall that the oldest treatment, antedating even the inunction, is the volatilization or inhalation of mercury vapor, so extensively practiced in the latter part of the fifteenth century with the outbreak of epidemic syphilis in Europe.

Much of the previous experimental work is open to two criticisms: Those who have attempted to prove the volatilization theory have confined their efforts to the most volatile of the mercurial compounds, and in the experiments tending to prove the absorption of foreign substances through the skin, the skin may not have been unbroken. It seemed an opportune time, therefore, to attempt to settle this question if possible along new lines of experimentation. We have attacked the problem with entirely open minds, and have sought scientific data which might bear on its solution.

Before submitting the results of our investigations, mention must be made of the exhaustive and excellent work of Welander. This work, more than any other, forms the basis for the view that the therapeutic effect of mercurial inunction is dependent on volatilization. The observations of Welander are so important that we present them somewhat in detail. His investigation extended over several years and included the study of several thousand patients. For the most part he accepted the elimination of mercury in the urine as the index of absorption. In only a few cases did he investigate the blood and feces. He found that the nature of the fatty vehicle did not materially affect the degree of absorption. He found that a salve in which one part of mercury was combined with two parts of fat was best adapted for the purposes of inunction. Welander established that, even with prolonged rubbing, only from 2 to 3 gm. of mercurial ointment could be rubbed into any given site of the usual size selected for inunction. He found that a greater degree of absorption occurred when a certain amount of free ointment was left on the anointed surface; that as great a degree of absorption occurred when the ointment was merely smeared on the skin instead of being rubbed into it, and that if the excess of mercury on an anointed surface was wiped off with soap and water, the degree of absorption was less than if the excess mercury was allowed to remain. In several cases in which mercury had never been taken in any form, Welander found mercury in the urine, and in one case a mercurial stomatitis after such a patient had lived in an ill ventilated room with others taking the inunction cure. He found mercury constantly in the urine of those giving inunctions to others, even when the inunctions were given with the hand covered by a glove. By spreading mercurial salve on a waxed paper and on gutta percha tissue, and by placing such prepared plasters on the skin surface, Welander detected mercury in the urine when no mercury came into contact with the skin.

On the basis of his experiments, Welander believes that the largest part of mercury which is smeared on the skin is absorbed as the result of its volatilization, and this fact led him to advocate smearing the skin with mercury rather than anointing it, as is customarily done. He concludes: Mercury is absorbed through the skin to a certain extent. By smearing the skin with mercury, volatilization occurs which gives rise to a very marked degree of absorption. A comparison of the simple inunction and the simple smearing on of the ointment shows a constantly greater degree of absorption in the latter. The dosage of mercury applied to the skin should be much larger than could possibly be pushed through, to allow for the absorption through inhalation.

In analyzing Welander's work, it is to be noted that his experiments were done solely with pure mercury in the form of an ointment, in which the drug is most volatile. It occurred to us that if we could attempt a series of experiments along the lines of those of Welander, but using salts of mercury of a lower vapor pressure, that is, those which are relatively nonvolatile, we might thus have a more adequate proof of the absorption of mercury through the skin. For example, if we could find mercury in the urine of a patient who was anointed with mercuric salicylate, it would be presumptive proof that mercury was absorbed through the skin rather than by volatilization, as this salt does not break up into metallic mercury except when dissociated by a great degree of heat. The same, then, might be done with the mercuric oxids, which are relatively stable, the oleate of mercury, the sulphate and the nitrate, all of which release metallic mercury only when decomposed by heat. We have done our experiments with some of these salts of mercury, using as a guide to their absorption the elimination of mercury in the urine. At first we believed that the blood would offer us a more satisfying and conclusive medium in which to detect mercury. For some time we tested out the mercurial content of blood in from 10 to 20 c.c. by decomposing the blood after the method of Willard and Laws. Later we abandoned this in favor of the urine in view of the greater ease with which mercury is detected in the urine.

METHODS

Many tests have been advocated for the detection of mercury in the urine, chiefly as a means of detecting the drug in cases of poisoning. Before embarking on the actual experimentation we investigated several of these methods with a view to ascertaining that one which at one time commended itself for simplicity and for delicacy of result. The principle embodied in most of the methods which we employed consisted in the deposition of mercury on copper. This is the basis of the Reinsch test, of the test advocated in 1912 by Vogel and Lee, and of numerous other qualitative tests for the detection of the drug. After considerable experimentation we finally resorted to three main methods. The first consisted in the simple addition of concentrated hydrochloric acid to the cold urine. In this mixture pieces of copper wire are allowed to remain about twelve hours, after which they are tested for mercury by heating the copper wire in a capillary tube and driving off the mercury on a bit of gold leaf, in which process the mercury is deposited on the gold leaf, forming an amalgam. The second process with which we experimented consisted in a concentration of the urine with the idea of making the test more sensitive, and at the same time adding sulphuric and nitric acid with the idea of destroying whatever organic matter might be present. We soon found that in the process of concentration by heat, a definite amount of mercury was lost, and we further found that the organic material in the urine in no way interfered with the detection of mercury, and it was not necessary, therefore, to destroy it. Lastly, we employed the method of Vogel and Lee, which embodies the concentration of the urine and the breaking up of organic matter by the addition of hydrochloric acid and potassium chlorate. This we found to be less sensitive, as was shown by our failure to detect a small amount of mercury in a known specimen by this method, and our ability to detect the same quantity by the simple method of adding hydrochloric acid to the cold unconcentrated urine.

After having determined, therefore, that the cold method, or the modification of the Reinsch test, which method will be described more in detail in a subsequent publication by Dr. Elliott, was the method of choice as embodying both simplicity and delicacy, we next sought to ascertain how small a quantity of mercury could be determined in solution by this method. For this experiment we added to normal urine known quantities of mercuric chlorid, and found that we could determine mercury as shown by the amalgamation from copper wire on gold in as small a quantity as 0.025 mg. per 300 c.c.[1]

Having determined, then, the sensitiveness of our test, we next began our experiments on the urine of patients who were receiving mercurial inunctions. The point to be determined was how soon after mercurial inunctions were given could mercury be found in the urine; in other words, to determine the rapidity of absorption. In a series of controlled experiments we found that with mercurial ointment, such as is customarily used in the inunction cure, mercury could be determined with a strongly positive test between twelve and twenty-four hours following the inunction.

As this point had been established, our next experiment concerned the detection of mercury in patients who were rubbed with mercurial salts other than the mercurial ointment. Our experiments in this connection were done with oleate of mercury, with red mercuric oxid, with yellow mercuric oxid and with mercuric salicylate. We had these preparations made in exactly the same strength, with the same vehicle which is used in the preparation of the official mercurial ointment.

The mercurial content should be considered in estimating the rapidity of absorption and the amount of mercury absorbed. The mercuric salicylate which we used contained 60 per cent., the red mercuric oxid 92 per cent., the yellow mercuric oxid 92 per cent., and the oleate 23 per cent. of metallic mercury. It is thus seen that the mercurial ointment contains a larger amount of metallic mercury than is found in the other salts.

RESULTS OF INUNCTIONS

1. *Mercuric Salicylate.* — Two patients who had never taken mercury before, and whose urine had first been tested for mercury, were anointed in the usual way with daily inunctions of 4 gm. of 50 per cent. ointment of mercuric salicylate. In both of these, mercury could be determined in the urine seventy-two hours following the inunction. The test was never as strongly positive as was found with the other salts of mercury. In other words, mercuric salicylate seems to be less easily absorbed, the elimination being used as an index, than the other salts which we investigated. This is interesting in connection with Dr. Schamberg's work on the absorption of mercuric salicylate from injections, in which he found that the salicylate was very slowly absorbed.

2. *The Mercuric Oxids.* — Two patients were anointed in the usual way with daily inunctions of 3 gm. of yellow mercuric oxid and red mercuric oxid in the form of 50 per cent. ointment. In the case of the yellow oxid a trace of mercury was found forty-eight hours after the first inunction and definitely seventy-two hours after. Mercury was found in the urine following inunction of the red oxid definitely in forty-eight hours. This experiment would seem to indicate a more rapid absorption of the red oxid over the yellow. Due allowance for such differences must be made in considering the individual cutaneous texture and the thoroughness with which the inunction was applied in each case.

3. *The Oleate of Mercury.* — Two patients were anointed in the usual way with daily inunctions of 4 gm. of a 50 per cent. ointment of the oleate of mercury. It required a lapse of seventy-two hours following the first inunction in both cases before mercury could be detected in the urine. It would seem, therefore, that the oleate of mercury has about the same rapidity of absorption as mercuric salicylate, and is not so rapidly absorbed as either the yellow oxid or the red oxid or the ordinary mercurial ointment.

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[1] By substituting copper dust for copper wire we made our test far more sensitive.

From these preliminary experiments we may conclude that following the inunction with relatively nonvolatile salts, such as were used herein, it was possible to detect mercury in the urine. It now remained to show that these salts were not volatilized at the ordinary body temperature and that their absorption occurred exclusively through the skin. For this experiment we placed the salves in pasteboard boxes which were tightly covered. On the under surfaces of the covers, but not coming into contact with the ointment, we fastened small pieces of copper wire. These boxes were then placed in a thermostat at 35 C. (95 F.) and left there for two days. In this way we tested out the volatilization of mercury outside of the body, but at approximately body temperature, of mercurial ointment, of ammoniated mercury, of the red and yellow oxids, of the oleate and of calomel. At the end of forty-eight hours the copper wire was placed in glass tubes, a small particle of gold leaf was placed at about 2 cm. distance, and the copper wire then heated as described before. Positive tests were found with the mercurial ointment and with the calomel and with the ammoniate. Negative tests were found with all the remainder.

From this experiment it may be concluded that of those salts tried, only those of the highest vapor pressure, namely, calomel, mercurial ointment and ammoniated mercury, are appreciably volatile at body temperature. This experiment may be regarded as presumptive evidence that the mercury detected in the urine following inunction with the nonvolatile salts, namely, the oxids, the oleate and the salicylate, was absorbed through the skin and not appreciably by volatilization.

If, therefore, mercurial salts are so easily absorbed through the skin, has the usual mercurial ointment, which has all the disadvantages of uncleanliness, any advantage over the cleaner nonvolatile compounds? In other words, is mercury appreciably absorbed by inhalation or diffusion through volatilization as carried out in the ordinary mercurial inunction?

To determine this we smeared the ordinary mercurial ointment and a 40 per cent. calomel ointment, respectively, on waxed paper. This was next covered with two or three layers of gauze, and the plaster thus made was then placed wax paper down on the chest of two patients, care being taken that no salve came into contact with the patient's body. In these experiments mercury was determined definitely in the urine in the case of calomel after ninety-six hours, although the application was made only during the night. In the case of the mercurial ointment, mercury was found in the urine after forty-eight hours. In our first experiment in which we used the mercurial ointment, we found the mercury within twelve hours after the application. In this case, however, it was found that the patient had had an injection of mercury six weeks previously. This was a very positive test, and throws an interesting light on the slow degree of absorption and elimination which takes place following injections. Our subsequent experiments were carefully controlled by first testing the urine before the experiment was done.

We next elaborated the volatilization experiment by placing near a bed patient a warm chamber in which mercurial ointment was kept at a temperature of about 35 C., the apparatus being constructed in such a way that the patient's face was close to the source of heat. As a further corollary to this experiment, small pieces of gold leaf were placed on colored glasses which the patient wore. Additional gold leaf was placed at distant points in the room in order to ascertain whether the mercury was diffused in the room in a sufficient quantity to amalgamate. In this experiment mercury was determined in the patient's urine within twenty-four hours after the experiment had begun. The gold leaf at distant points in the room was not amalgamated. In this connection, however, we found that when exposed to the air the mercury soon disassociated itself from the gold, and it may well be possible that the free mercury vapor in the room volatilized from the gold leaf about as fast as it could amalgamate.

A second experiment bearing on the absorption of mercury through volatilization in a large room was made possible by examining the urine of a nurse who had been giving inunctions to patients over several weeks. These inunctions had been given in large, well ventilated rooms with the gloved hand. We were able in this case to detect mercury in the urine; even though no inunctions had been given by the nurse for nine days previous to the test. Successful experiments of this nature are also reported by Welander.

From the last experiments it may justly be concluded that in the case of both calomel and mercurial ointment, mercury is volatilized at body heat to such a degree that an appreciable absorption and elimination takes place in the urine. As a corollary to this it may further be concluded that the absorption of mercurial ointment and calomel following inunction is necessarily greater than can occur with the less volatile salts. The therapeutic effect of these two may thus be regarded as greater in view of the greater degree of absorption. In this connection we should like to state that it was Dr. Schamberg who more than a year ago, in conversation, suggested the obvious advantage of calomel over the more offensive mercurial ointment as a possible substitute for it.

In connection with that portion of the mercury which is volatilized, the question now arises as to just how this is absorbed. Two possibilities must be considered. In the first place, a certain amount, at least, must be inhaled through the lungs and absorbed in this way. Regarding the skin surface as an animal membrane, it seems not unlikely that a certain portion, at least, however small, may combine with the surface moisture of the skin to form a chlorid and be absorbed through the skin in this way. Unfortunately there are as yet no experiments which bear immediately on this question as regards mercury itself, although the diffusion of heavy metals through animal membrane is the subject of well known experiments.

CONCLUSIONS

1. The mode of absorption of mercury in the inunction cure is both by volatilization and by direct absorption through the skin.
2. Nonvolatile salts of mercury are absorbed through the skin, but their elimination and their absorption are far slower than is the absorption of those salts having a high vapor pressure.
3. The more rapid appearance of mercury in the urine in the case of the volatile salts is probably due to the combined action of volatilization and inhalation through the lungs and absorption through the skin.
4. In the order of rapidity of absorption, mercurial ointment ranks over calomel, although the latter is appreciably absorbed through volatilization.
5. As the therapeutic effect of mercury is probably in proportion to the rapidity and degree of absorption,

there can be no question that the volatile salts should not be superseded in the inunction cure by the nonvolatile salts, even though the latter have the advantage of cleanliness.

6. As calomel is obviously a cleaner preparation, and further, as it is absorbed both by volatilization and directly through the skin, further study should be undertaken to determine whether its therapeutic effect may not justify its substitution for mercurial ointment.

REMOVAL OF URETERAL CALCULUS BY CYSTOSCOPIC METHOD

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Miss E. E., aged 22, fairly well nourished, referred to me, Oct. 7, 1916, by Dr. P. C. Rietz of Evansville, Ind., had had colicky pains on the right side for about two years. Roentgenoscopy eighteen months before, while she was under the care of another physician, had revealed a shadow in the ureter about 5 cm. above the bladder. At the time of my examination, the Roentgen ray revealed a shadow in the same position. The urine contained a few pus and blood cells, and oxalate crystals. There was a decided tenderness in the right iliac region, and a dull pain was almost always present. Cystoscopic examination revealed a normal bladder but very small ureter orifices. A No. 5 catheter was with much difficulty introduced into the right ureter about 4 cm., when it encountered an obstruction which could not be passed.

We decided that the stone must be removed, and having recently seen Dr. Bransford Lewis do some of his ureter work, we determined to try this method before resorting to the open operation.

The Lewis operating cystoscope was introduced and the meatus slit for the distance of 0.75 cm. with the scissors. This was followed by the introduction of catheters, increasing in size, until a Garceau catheter seemed to dislodge the stone and was then passed as far up as was desired. The ureter dilator then entered without trouble and the ureter was dilated to the size of the shadow of the stone. This, of course, was done gently and gradually, the ureter being dilated four times at intervals of one week.

About two weeks after the last dilatation the patient had a slight colic, and the stone passed into the bladder. Since that time the patient has been without any symptoms.

The anaesthetic used was morphin, one-fourth grain, with atropin half an hour before cystoscopy and alypin, 4 per cent., injected into both the urethra and the ureter.

I should like to bring out a few points about this method in reply to some objections which have been raised. First, why has not this method, at least in removal of the smaller stones, supplanted the open operation? It was in 1904 that Dr. Lewis first brought the method to the attention of the profession, and I know of no urologist who has attempted to follow it. I will quote from a letter from Dr. Lewis which will be self explanatory: "I have met with a considerable degree of skepticism for various reasons. Some of the profession thought the work was too refined and difficult to prove practicable; others, I believe, have thought that I might have been drawing on my imagination with reference to the satisfactory results attained." In regard to these objections I would say that while there are few of us who may hope to attain the skill with the use of the cystoscope that Lewis has developed, still, my successful performance of the operation is proof that any competent cystoscopist may do the same.

The matter of hemorrhage has been mentioned. In this case there was none; but had there been, a little epinephrin injected into the ureter would probably have controlled it, and if not, the cauterization from the d'Arsonval current would certainly have done so.

It is important always to dislodge the stone and push it back at least 1 or 2 cm. so that the dilator may reach the point of narrowing which first caused the stone to stop in its passage.

Before open operation is resorted to, this method should always be tried in cases in which the stones are within 4 or 5 inches of the bladder, because of its simplicity, because of the comparative lack of danger, and because of saving the patient the unpleasantness of a major operation and a tedious convalescence.

THE CULTIVATION OF A MICROCOCCUS FROM BLOOD IN PRE-ERUPTIVE AND ERUPTIVE STAGES OF MEASLES *

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In 1905, Hektoen[1] produced measles in two men by injecting blood collected early in the disease from measles patients. Aerobic ascites broth cultures of the injected blood remained sterile. In 1911, Anderson and Goldberger[2] demonstrated that the rhesus monkey is susceptible to inoculation with the blood of measles early in the eruptive stage. Their results pointed to a "period of infectivity of the blood beginning at least before and continuing for about twenty-four hours after the first appearance of the exanthem. At the end of about twenty-four hours from the appearance of the eruption, the infectivity of the blood for the rhesus monkey already appears very greatly reduced and becomes progressively less thereafter." The blood of each patient and of the monkeys showed no growth in aerobic glucose broth cultures. Later experiments indicated that the desquamating epithelium[3] of measles in itself did not carry the virus, and that the nasal and buccal secretions of uncomplicated cases might at times, but not always, be infectious for the monkey. through a Berkefeld filter, (2) resist desiccation for They[4] found that the virus in measles may "(1) pass twenty-five and one-half hours; (3) lose its infectivity after fifteen minutes at 55 C.; (4) resist 'freezing' for twenty-five hours, and (5) possibly retain some infectivity after twenty-four hours at 15 C."

From these experiments it is evident that the virus of measles is present in the blood early in the disease, but apparently cannot be grown in ordinary aerobic cultures. Blood cultures, therefore, have been made during the pre-eruptive and early eruptive stages of the disease by the newer anaerobic cultures as well as aerobic methods.

The blood was drawn with a sterile syringe from the vein at the elbow, after carefully washing with alcohol or tincture of iodin and alcohol. Generally whole

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* From the Memorial Institute for Infectious Diseases.

[1] Hektoen: Jour. Infect. Dis., 1905, **2**, 238.

[2] Anderson, J. F., and Goldberger, Joseph: Pub. Health Rep., 1911, **26**, 847, 887; The Period of the Infectivity of the Blood in Measles, The Journal A. M. A., July 8, 1911, p. 113.

[3] Anderson, J. F., and Goldberger, Joseph: The Infectivity of the Secretions and the Desquamating Scales of Measles, The Journal A. M. A., Nov. 11, 1911, p. 1612.

[4] Goldberger, Joseph, and Anderson, J. F.: The Nature of the Virus of Measles, The Journal A. M. A., Sept. 16, 1911, p. 971.

blood was added to the medium, but sometimes it was collected in sodium citrate solution. The cultures were incubated at 36 C.

Anaerobic cultures have been made in semicoagulated horse serum; on anaerobic Krumwiede[5] plates as used by Dick and Henry[6] in blood cultures in scarlet fever; in ascites fluid and horse serum alone or with plain and dextrose broth, with and without tissue. Anaerobic cultures have also been made of hemolyzed blood and lately of whole blood in ascites dextrose agar shake cultures as used by Plotz[7] in isolating the typhus bacillus.

The coagulated horse serum was prepared by heating the serum, about 10 c.c. in each tube, at 56 C. for one hour on three successive days, the temperature at last being raised slowly to 70 C. and kept there until the serum became semicoagulated. The tubes were incubated four or five days before being used. About 1 c.c. of blood was added to each tube directly from the syringe and forced toward the bottom of the tube with a sterile pipet. When the cultures were examined, some of the contents from different parts of the tube were removed with a pipet, and smears and subcultures made.

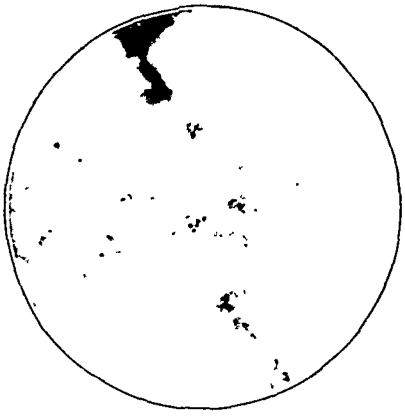

Fig. 1.—Micro-organisms in original semicoagulated horse serum culture; five days' growth; Gram stain; × 1,000. The organism often is much smaller than these in the photomicrograph.

In using the Plotz method only 0.5 c.c. of blood was added to the ascites dextrose agar on account of the difficulty of otherwise seeing the colonies. Large test tubes containing 20 c.c. of dextrose agar were employed so that the contents could be mixed without being poured into another tube. Aerobic cultures were made in the fluid mediums mentioned.

All mediums were always thoroughly tested for sterility. As the experiments have been carried on during a period of four years, a large number of specimens of ascites fluid and horse serum have been used. Subcultures from the various inoculations were made on ascites goat blood agar slants, in semicoagulated horse serum and various fluid mediums. The original cultures and subcultures were made anaerobic by the use of pyrogallic acid and sodium hydroxid, the stoppers being paraffined. Occasionally sterile fluid paraffin was used on fluid cultures.

Successful cultures were not obtained in any of the anaerobic fluid mediums or in the aerobic cultures. The absence of growth in anaerobic fluid cultures may be due to the medium being more aerobic than the solid and semisolid mediums. The largest number of positive cultures were obtained in semicoagulated horse serum and the whole blood ascites dextrose agar shake cultures. The anaerobic plates and the hemolyzed blood ascites dextrose shake cultures were fairly satisfactory, but the chances of contamination are slightly greater than with the other methods.

Blood cultures have been made from fifty patients in the pre-eruptive and eruptive stages and from five when the rash was fading. In every instance it concerned true measles — rubeola. A small micrococcus was observed in the original anaerobic cultures in forty-two of the early cases. The cocci were found in all of the last fifteen cases studied. In the earliest culture, obtained a few hours after the appearance of the Koplik spots and twenty-four hours before the eruption, there were only a few organisms. Cocci were present in large numbers in the cultures of three patients made a few hours before the appearance of the exanthem; two in ascites dextrose shake cultures showed innumerable colonies. Similar shake cultures made in a case when the rash was just appearing showed about one-half as many colonies. The organisms now become less numerous and disappear from the blood as soon as the rash begins to fade.

Twenty-eight of the forty-two positive cultures grew slightly for two or three generations only. One strain remained strictly anaerobic, growing only on blood agar and not in fluid mediums. Thirteen strains became aerobic in the second generation and grew fairly abundantly. The subcultures from the coagulated horse serum may not have been made always at the most favorable time, as it is impossible to see the growth in this medium. In the shake cultures the colonies could generally be seen, so that the tubes could be opened as soon as growth occurred. Sometimes, however, the colonies are so small they can be seen only with difficulty after the tube is broken and the medium sliced with a sterile scalpel. Growth appears in the original tubes in from one to twenty-two days, generally in from five to fifteen days. The cultures in which the organisms were first found in the second and third week may have grown out earlier and not been observed. Subcultures generally grow in twenty-four hours after growth is established. Growth in the strictly anaerobic strain occurs on about the ninth day.

Successful subcultures on plain blood agar plates show small greenish colonies giving a decidedly green color to the medium. The growth on dextrose blood agar is more profuse and more moist. After growing a few days the culture has a burnt appearance. Four of the strains gave larger, moister colonies. These four do not decolorize milk; the others produce acidity and some coagulation. They all grow on plain agar as a colorless growth. In ascites dextrose broth the growth is flocculent, the fluid often remaining clear. They grow a little in plain broth. All ferment dextrose and saccharose and all but one maltose. An occasional strain ferments mannite and lactose. None ferment inulin, salicin and raffinose. None are soluble in bile. None liquefy gelatin.

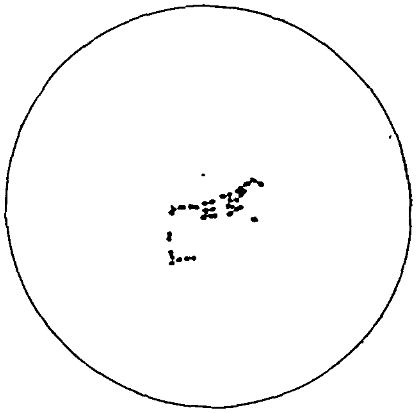

Fig. 2.—Forty-eight-hour growth on ascites goat blood agar of a strain producing small colonies; Gram stain; × 1,000.

In smears from the original culture, the organism appears as a very small, round, sometimes flattened diplococcus or in short chains, sometimes as clumps of cocci of varying sizes. In the coagulated horse serum they are so small and sometimes so few in number that considerable search is necessary to find them. They are perfectly distinct, however, when they are found. In subcultures the organisms appear larger, generally as a diplococcus, sometimes in short chains, but sometimes in long chains or in clumps like staphylococci. The cocci at the ends of chains are occasionally smaller than those in the center. This is especially noticed in the anaerobic strain. Large forms are occasionally seen. The organism is gram-positive and stains with ordinary stains. Carbol-gentian-violet was used in staining the original cultures on account of its penetrating power.

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[5] Krumwiede: Jour. Infect. Dis., 1913, **12**, 199.

[6] Dick, G. F., and Henry, G. R.: Jour. Infect. Dis., 1914, **15**, 85.

[7] Plotz: Jour. Infect. Dis., 1915, **17**, 1; Baehr: ibid., 1917, **20**, 201.

A similar diplococcus was isolated from the throats of all the patients examined on aerobic blood plates, and was the organism most frequently found in anaerobic cultures from the nose and eye. It was isolated in pure culture from discharge from the ear. The organism was not found in similar blood cultures from five measles patients with fading eruptions, five normal persons, two suspected measles cases and three scarlet fever patients. It is not described by Dick and Henry in their exhaustive work on anaerobic blood cultures in scarlet fever.

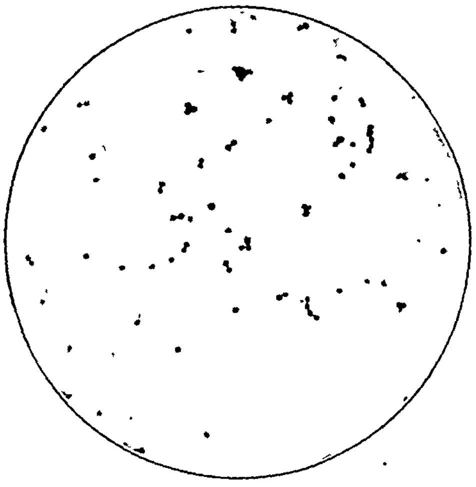

Fig. 3.—A forty-eight-hour growth on ascites goat blood agar of a strain producing larger colonies; Gram stain; × 1,000.

Cultures of the diplococcus pass through Berkefeld filter "N." They resist drying twenty-four hours, none being alive in forty-eight. Swabs were soaked in a horse serum dextrose broth culture, allowed to dry in sterile test tubes at room temperature for varying periods and then cultured. The organism is killed by heating at 57 C. for forty-five minutes. It resists a temperature of — 2 C. for at least fourteen days, and 50 per cent. glycerin two months at least.

In scarlet fever, Dick and Henry found that at the height of the attack a variety of bacteria are present in the blood. The same occurs in measles. Before the eruption the diplococci I describe were found alone in the blood and alone also in twenty-one cases soon after the appearance of the exanthem. At the height of the fever, however, various other bacteria were isolated from the blood in twenty cases: Aerobic (ten cases) and anaerobic diphtheroid bacilli (twelve), filamentous organisms (six), gram-negative spirilla (four), a black pigment producing bacillus (one), spore forming large bacilli (four), and staphylococci (three). With the exception of the gram-negative spirilla, similar organisms were also cultivated from the throat, nose or eye. It is possible that some of these growths came from contaminations, but surely not all.

The special points of interest in this work are: the almost constant presence of a diplococcus in the blood of measles patients during the pre-eruptive and eruptive stages; its presence alone and in large numbers before the appearance of the eruption and alone also in a large proportion of cases at the height of the infection, and its presence at the same time in the throat, nose and eyes.

AN ABNORMAL PERITONEAL FOLD OVER THE FIRST PORTION OF THE JEJUNUM

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OMAHA

The rarity of this condition makes it interesting from an embryologic and surgical standpoint. The colon in its embryologic course from left to right brings the original right leaf of the mesocolon across the duodenojejunal angle, and in so doing leaves this portion as the inferior layer of the transverse mesocolon, covering this area of the small intestine with a crescent shaped part of the original right leaf of the mesocolon, and in turn forming the duodenojejunal fold. In the case to be reported, the inferior layer of the transverse mesocolon covered the first 6 inches of the jejunum, resulting in making the projection of the small intestine into the peritoneal cavity near the pelvic brim instead of at the inferior border of the transverse mesocolon (Fig. 1).

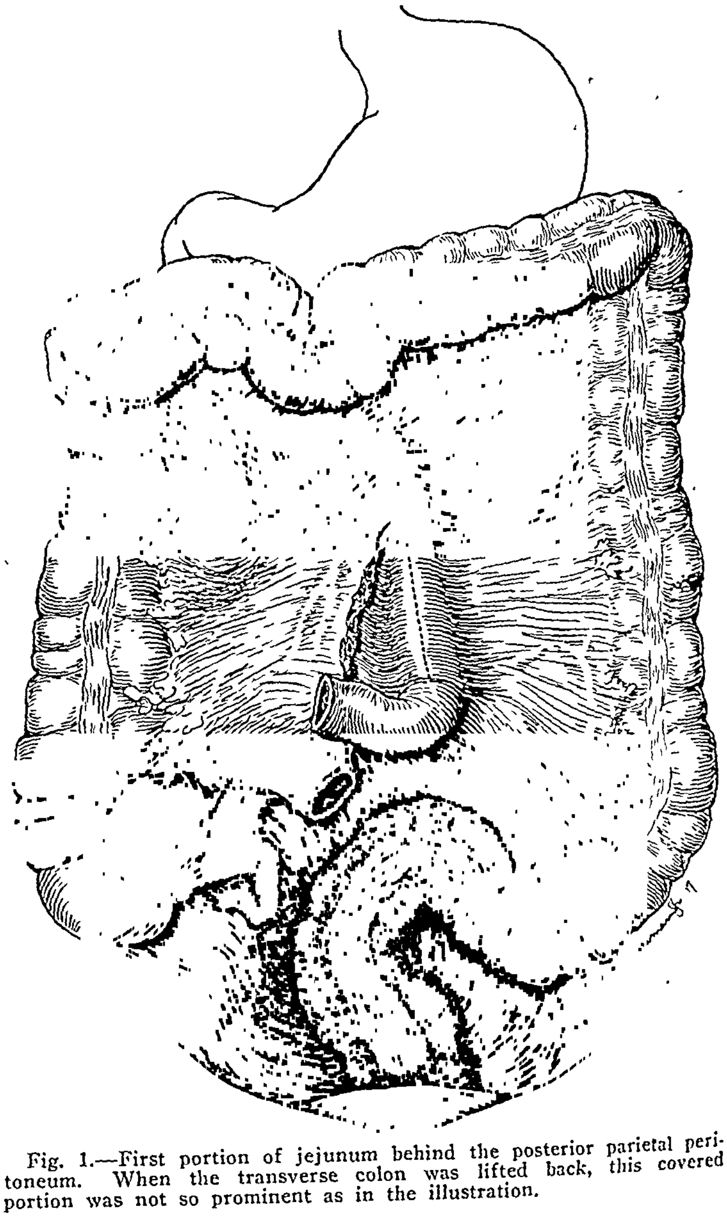

Fig. 1.—First portion of jejunum behind the posterior parietal peritoneum. When the transverse colon was lifted back, this covered portion was not so prominent as in the illustration.

W. J. N., man, aged 45, for six years had had epigastric pain coming three or four hours after meals, relieved by food, alkalies and later vomiting. Further details and examination elicited a typical duodenal ulcer syndrome. Operation, May 18, 1911, revealed a large duodenal ulcer on the anterior surface, blocking three fourths of the lumen. When the colon was raised in order that the first portion of the jejunum might be located for a Mayo no loop posterior anastomosis, this portion was not to be found. After a few minutes' search, a ridge of peritoneum suggesting the covering of bowel beneath was noticed (Fig. 1), and after I incised it the jejunum was easily liberated to the extent of about 2 inches from its posterior abdominal bed. This ridge, on being traced down, was found to cover the jejunum to the pelvic brim. Owing to the lack of excursion of this part of the jejunum, it was attached to the stomach vertically without clamps, resembling a Moynihan anastomosis (Fig. 2). To date, five and one-half years later, the patient has been perfectly well, relative to his former complaint.

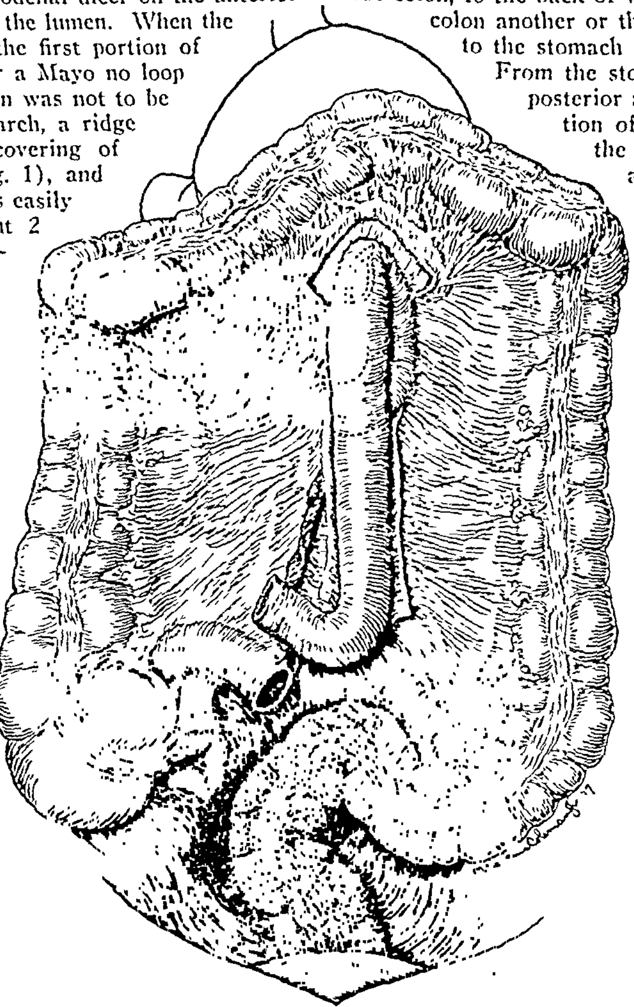

Fig. 2.—First portion of jejunum liberated and anastomosed vertically to the posterior wall of the stomach. The illustration exaggerates upward the excursion of this portion.

A rather cursory search of the literature has not revealed another similar case. Malcolm[1] reports the nearest example, to my knowledge, with one operative case in his experience, and mentions two postmortem records. These folds or membranes were a great deal more extensive and perhaps of a different origin. Malcolm says:

> The ascending, transverse, and descending colons appeared normal, but when the omentum was turned up there were no small intestines visible anywhere. In their place there was a soft elongated oval mass lying more or less parallel with the long axis of the body. When its lower end which dipped into the pelvis was brought through the incision this mass assumed a rounded shape. It consisted of a thin membrane of peritoneum covering the whole of the small intestines and bulged by them into all parts of the peritoneal sac which they usually occupy. The membrane was attached to the posterior abdominal wall transversely above the sacral promontory, and close to this attachment there was a gap in it (Fig. 3) through which the small bowel passed just before it joined the colon. This opening had a diameter of about an inch and its edge was thickened. The abnormal membrane was incised and afterward cut away and then the small intestines were exposed and appeared to be in all respects normal. The relations of the upper end of the jejunum were those usalled, and by th membrane which had been incised extended ter had faller verse colon, to the back of which it was attached. eral other. colon another or the same membrane was cohe, diz to the stomach across a space of quite 2 inche From the stomach a membrane passed to the posterior abdominal wall in the usual position of the lower limiting boundary of the lesser sac of the peritoneum. The abnormal membrane was attached at the sides (Fig. 3) to the posterior wall of the abdomen inside the attachments of the ascending and descending colons, which were rather more loosely fixed than usual. Figures 3 and 4 show the relations of the parts diagrammatically in longitudinal and in cross sections as well as it was possible to define them in the living body.

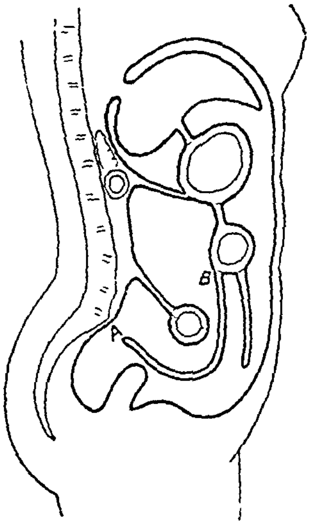

Fig. 3.—Abnormal membrane: *A B*, in longitudinal section; *A* marks the nearly central round opening in the membrane.

Professor Cleland in 1868 described a condition observed postmortem which closely resembled that described above. When the abdomen was opened "the entire mass of the small intestine remained concealed from view, being lodged within a secondary sac bounded by omentum and mesocolon and communicating with the general sac by means of a small aperture at the upper margin of the ileocecal junction only large enough to admit the passage of a finger. . . . On making incisions from this natural inlet to the arch of the colon the normal arrangement of peritoneum may be said to have been produced."

Another example of a somewhat similar abnormality was found in the postmortem rooms of the University of Manchester by Dr. J. D. Hickley and Dr. J. Cameron. In this case the enveloping membrane did not have any opening, and it was quite separate from the colon. It contained in its upper anterior part the lower portion of the duodenum, which lay in front of the superior mesenteric artery.

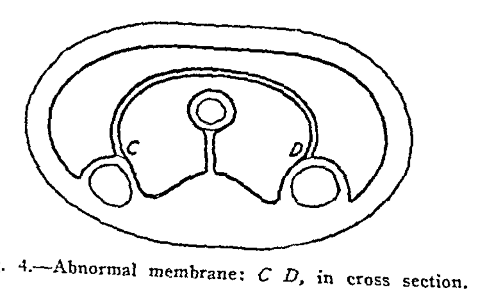

Fig. 4.—Abnormal membrane: *C D*, in cross section.

The relations of the abnormal membrane to the colon and the duodenum in this case appear to have been quite different from those which were found in the other two cases.

834 Brandeis Theatre Building.

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[1] Malcolm, J. D.: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, 1911, 2, 1401.

OR HYPOSPADIAS

AN BEVAN, M.D.

CHICAGO

place on record a new operation for as for that group of cases in which the abnormal opening is close to the glans, say within an inch. In my surgical work I have tried out a number of operations for hypospadias and found none entirely satisfactory. The nearest approach to a satisfactory operation, I think, for the particular group of cases under discussion is the operation introduced by Beck in which he dissects up the urethra for some distance, bores a hole through the glans, and carries the free urethra up through this opening and stitches it in position. The Beck operation is not satisfactory for several reasons: 1. It shortens very much the undersurface of the organ, putting this under great tension. 2. It produces a lot of scar tissue around the urethra for a considerable distance which also has a tendency to contract. 3. If the operation does not succeed, it does a good deal of damage.

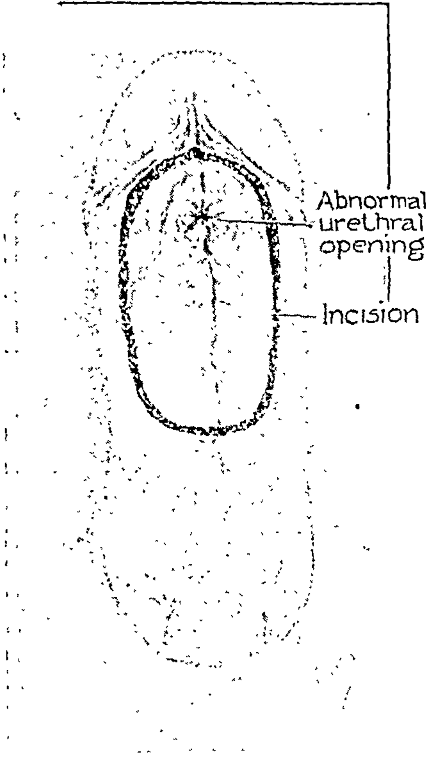

Fig. 1.—Dissection of an oblong flap of skin from around the abnormal opening, the lower part of the flap being longer than the upper.

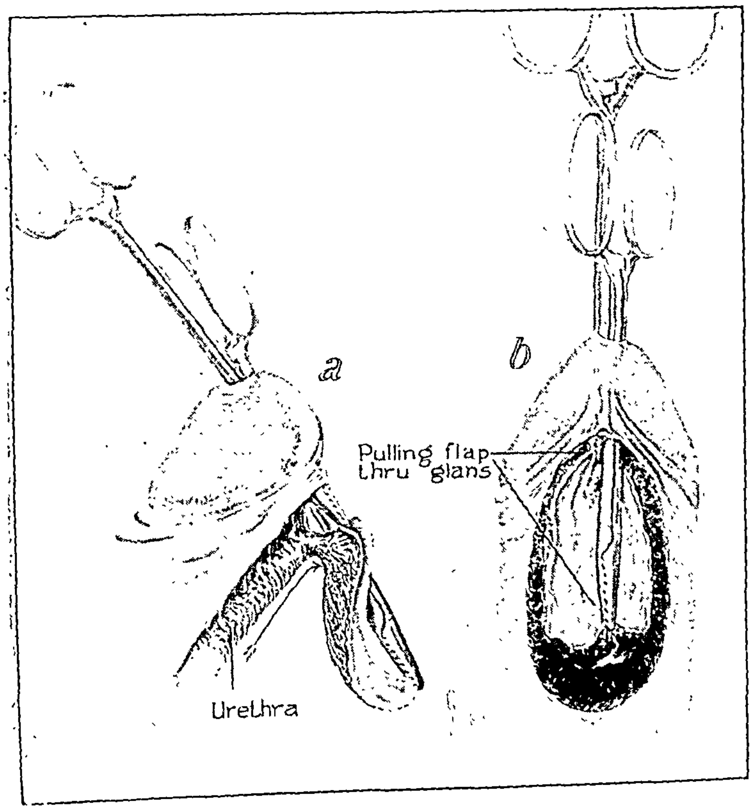

Fig. 3.—Oblong skin flap drawn up through the opening bored in the glans with two very small pairs of artery forceps.

The amount of improvement obtained from operation in a number of these cases was so small that I have for some time been advising these patients, especially those with an opening close to the glans, to have nothing done in an operative way. Lately, however, in studying over one of these cases I devised a plan which seems to meet the indications admirably and carry with it no disadvantages, and in the one case in which it has been employed the result was perfect in the sense that the urethra was restored from the abnormal opening to the center of the glans with no tendency to contract and with excellent function. The operation can be best understood by reference to the illustrations.

I have likened this skin plastic to an umbrella which has been blown inside out by the wind. The parallel would be closer if we imagined that the handle of the umbrella was a tube like the urethra and that our skin flap when drawn up through the glans is like the umbrella turned inside out.

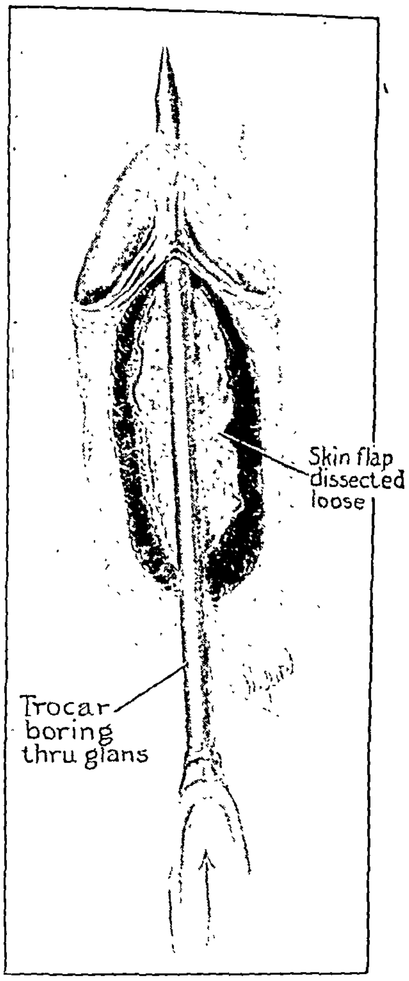

Fig. 2.—Hole bored through the glans with a trocar. This is enlarged by a closed pair of artery forceps passed up through it, and quite a free opening is made through the center of the glans—so free that there will be no tendency to constrict the flap, which is later introduced into this opening, and cut off its circulation.

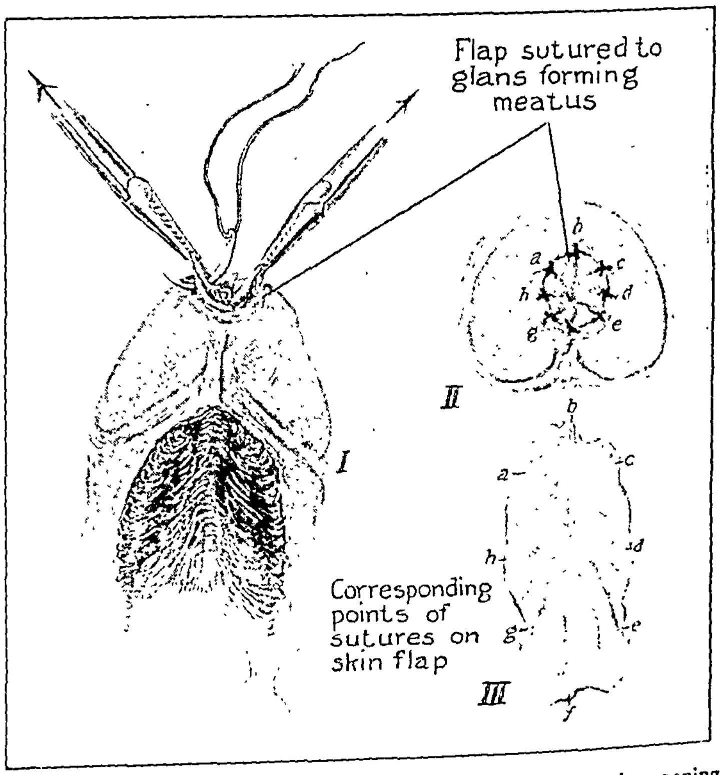
Flap sutured to glans forming meatus
I
II
a
b
c
d
e
f
g
h
III
a
b
c
d
e
f
g
h
Corresponding points of sutures on skin flap

Fig. 4.—Stitching the circumference of the skin flap to the opening in the glans.

This introduces a new principle in operating for hypospadias in that it makes the new part of the urethra entirely out of the skin flap without buried sutures of any kind, the skin flap being so formed as to make a tube of large caliber which is very elastic and which in time contracts down to a tube of moderate and appropriate size. There is no necessity of using a catheter or of draining the bladder through a stab wound in the perineum. There is no possible damage done to the existing part of the urethra, as this is interfered with in no way.

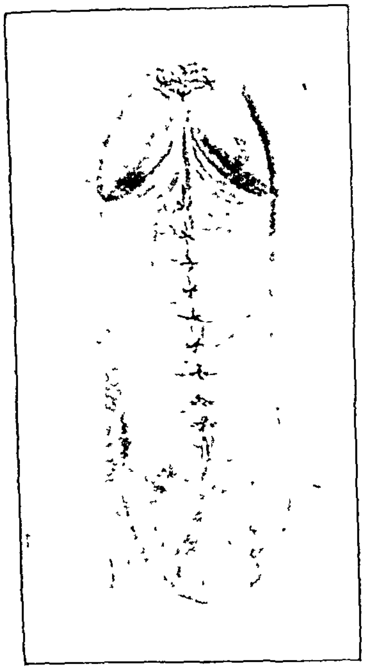

Fig. 5.—Closure by interrupted sutures of the skin defect left by dissecting up the skin flap.

How wide an application this new operation may be given remains to be proved by actual use in clinical cases. I am inclined to believe, however, that it can be employed in openings 1½ or 2 inches from the normal meatus by modifying slightly the technic. The fact remains that in the single case in which it has been employed it produced the most perfect restoration and the most satisfactory result that I have seen in any hypospadias operation. I present this as a new operation involving a new but very simple principle which I believe should be extended and tried out in a considerable group of cases.

122 South Michigan Avenue.

PECULIAR POISONING IN A CONSTRUCTION CAMP

REPORT OF DEATHS AND PROSTRATIONS

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Director, Division of Industrial Hygiene, Ohio State Department of Health
COLUMBUS, OHIO

The physician is almost constantly confronted with perplexing problems, prominent among which are the sudden deaths and prostrations which occur from obscure causes. In view of this fact it seems proper to call attention to three deaths and a number of prostrations and illnesses which occurred under unusual circumstances in a construction camp, and which I had occasion to investigate. As the investigation was made almost eight days after the first death occurred, the account is to a large extent dependent on hearsay.

At about 8: 30 p. m., Monday, Dec. 18, 1916, a member of the construction gang, consisting of about thirty white and thirty colored men, discovered one of the colored waiters lying in an unconscious condition on the floor in the bunk house, where he had apparently fallen from the second-tier bunk which he had occupied. The superintendent was notified, and with several others attempted to revive the unconscious man. His respirations were rapid and shallow and his pulse weak and rapid. A physician was called, and by th time he arrived another colored waiter had falle unconscious and the superintendent and several other were suffering from throbbing temporal headache, dizziness, palpitation, epigastric pain, and weakness, especially of the lower extremities, to such a degree th they were forced to seek their beds. When the physician arrived he concluded that all had eaten poisoned food, and administered apomorphin and other emetics and also cathartics. The physician stayed at the camp for an hour or two and left, thinking that everything possible had been done. The two unconscious men had not regained consciousness, however, but the other afflicted men had fallen asleep and were apparently in good condition.

About 1 a. m. it was noticed that both unconscious men were vomiting and that the one was apparently near death. The physician was again called but was unable to come at that time and sent another physician instead. When he arrived, the waiter was dead, five other men were unconscious, and five more were suffering from dizziness, headache, palpitation, nausea and general weakness to such an extent that they were forced either to sit or to lie down. The physician, also assuming that they had eaten poisoned food, and knowing that the other physician had administered emetics, thought it best to get them to a hospital, and accordingly called ambulances and taxicabs and sent ten of them (six white and four colored) to a hospital, a distance of about 12 miles. Two of the unconscious men regained consciousness during the journey, and several others who had suffered from headache, dizziness, weakness, etc., felt much better by the time the hospital was reached. Physicians at the hospital were agreed that the men were poisoned, probably by contaminated food, and accordingly thoroughly lavaged the stomachs of the afflicted men, and by means of the stomach tube administered a large dose of castor oil to each man. One of the unconscious men died later (December 22) without regaining consciousness (second death). The others gradually recovered, and in three or four days were apparently none the worse for their experience. The physician who was responsible for sending these men to the hospital informed the investigator that, after returning to his home from the camp, he himself suffered from a severe headache and drowsiness, the headache persisting for the greater part of the day.

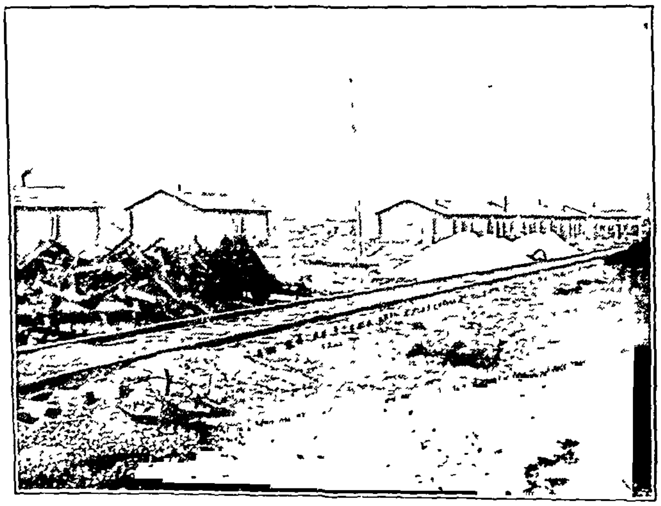

Fig. 1.—Construction camp in which the men were poisoned.

At 2 a. m., Friday, December 22, the superintendent and three other men returned to the camp, which ad been deserted since the night of the experience ecorded above. The superintendent and the cook occupied one room while the other two men occupied a room separated from their room by the "white" dining room and the kitchen. All retired feeling well, but at 4 a. m., when the cook rose to prepare breakfast, he had a violent headache, and was so "weak in the knees" and dizzy that he was forced to go back to bed. He so informed the superintendent, who thought it est to call a physician, but he fell to the floor unconious before he reached the telephone. One of the men in the other room also became unconscious about this time, and when a physician reached the camp, three were unconscious, and the other was suffering from headache, dizziness and general weakness. All were sent to the hospital and all recovered in a short time except one white man, who died Monday evening, December 25, from what was apparently pneumonia (third death).

To determine the poison responsible for these deaths and prostrations, the stomach and its contents were removed from the body of the man who died first and sent to a physician in a neighboring city for analysis. Feeling certain that such an analysis would reveal the cause of death, the two physicians who removed the stomach did not complete the necropsy, although the heart was opened and found filled with very red liquid blood. The necropsy was performed twenty-four hours after death. A careful analysis of the stomach contents did not reveal the presence of any poison, and it was concluded that ptomains were responsible.

Necropsies on the bodies of the other two men who died revealed, in one, the right lung in a state of general red hepatization and some small petechial patches in the stomach, and in the other the right lung bound down with adhesions laterally and both lungs congested posteriorly and moist on section.

The camp buildings were located approximately 150 yards from the nearest building (the shear room) used by a rolling mill company. The men were housed in three buildings (Fig. 1), the largest of which contained a "colored" bunk room, "colored" dining room, store room, kitchen, "white" dining room, office and two other small bunk rooms used by overseers and kitchen help. The other two buildings were the "white" and "colored" bunk houses (Fig. 2). Each room was equipped with a coal stove except the store room, and all stoves were new and in good condition, and equipped with pipes, without dampers, extending through the roof. No attempt was made to keep fires all night in the bunk rooms, and it was stated that windows were invariably opened at night. The buildings were clean and well kept, and the food in the store room was of good quality and in good condition. The kitchen was equipped with a sink from which a waste pipe led through the floor, and all wastes were allowed to accumulate under the floor to be absorbed by the earth. Several of the men stated that they had noticed some odor as a result of this arrangement, and were inclined to think that they might have suffered from poisoning by "sewer gas."

No gas was used in the building, and it was stated that no gas mains or pipes were situated near the camp. The buildings were located on an old fill or dump, where dirt, slag, scrap, mill wastes, ashes and cinders had been deposited for a period of about five years, but where none had been deposited for the last six months. This fill covered an area of about 1½ or 2 acres, and was from 10 to 15 feet deep.

About ten days previous to the time of the occurrence related above, an employee of the mill noticed what seemed to be a little steam arising from the edge of the fill about 50 feet from the camp building. It was thought that the dump might be on fire, and by means of teams and scoops a trench was dug around the part thought to be on fire in an effort to isolate it. The dump was found to be frozen to a depth of about 2 feet, but at a depth of 5 feet red hot cinders were encountered, and a second trench was started 10 feet back of the other trench. Hot cinders were found in this one, and when the investigator left, the fourth trench was being dug, which extended under the camp building, and in which hot cinders were found at a depth of about 5 feet (Fig. 3). While working in one of these trenches, six men suffered from headache, dizziness, and "weakness in the knees" to such an extent that it was necessary to help them from the trench, and two were taken to the plant hospital of the rolling mill company. On entering one of these trenches the investigator noticed within a few minutes a sense of pressure in the temples, general weakness, especially of the lower extremities, and blurring of the vision.

The deaths, prostrations and toxemias undoubtedly occurred as the result of the inhalation of carbon monoxid. This gas was formed as a result of the smoldering, incomplete combustion of cinders and other material in the dump, and owing to the frozen surface, found its only outlet beneath the camp buildings where the surface was not frozen, having been protected by the building, which was equipped with stoves. The hot water which came through the kitchen sink was probably also a factor in keeping the cinders soft and porous, allowing for free outlet of these gases, acting as a sort of flue for the smoldering fire beneath. Gases passing through earth lose their impurities and odors as they pass onward.[1]

The symptoms and complaints of the men affected were typical of carbon monoxid poisoning, with practically no symptoms pointing toward poisoning by contaminated food or ptomains. It must be remembered, however, that this camp had been occupied for a period of about three months with no trouble, and this can be explained only by the fact that the dump might have been on fire only for a short length of time, or that the gas had never found its way to the surface in

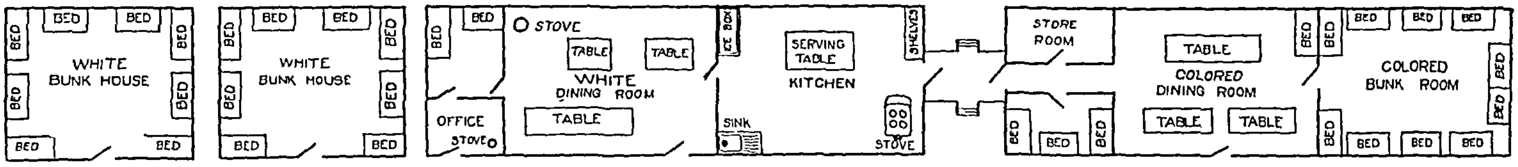

Fig. 2.—Plan of camp.

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[1] Oliver, Thomas: Diseases of Occupation, London, Methuen & Co., 1908.

quantities sufficient to produce poisoning. The latter explanation is probably correct, as the extent of the fire and the fact that nothing had been added to the dump for a period of more than six months would indicate that the burning process had been going on for some time. It is unfortunate that more complete necropsies and chemical tests were not performed, as the presence of carbon monoxid could undoubtedly have been shown by the spectroscope or various chemical tests. Unfamiliarity with carbon monoxid poisoning clinically and the prejudicing theory of food or ptomain poisoning were mainly responsible for the failure of accurate diagnosis.

The company made preparations immediately to move the buildings to a point at which there would be practically no danger. Canaries were placed in the various apartments in order that traces of poisonous gases might be detected early. This was done because of the fact that, with the wind in the right direction, and under certain other atmospheric conditions, harmful amounts of the gas might prevail when the dump was torn up in an attempt to extinguish the fire.

Carbon monoxid causes more cases of industrial illness and death than any other gas, and is a constant danger in thirty or more industries.[2] The gas is colorless, odorless and tasteless, and is found as a by-product wherever combustion of carbon-containing material occurs. It has been said that a volume of air containing 0.01 per cent. may cause headache, dizziness, weakness and other phenomena, while two to three parts per thousand of air are dangerous to life. The gas is toxic by virtue of its power to unite itself with the hemoglobin, replacing the oxygen and forming a stable compound known as carboxyhemoglobin. The affinity of hemoglobin for carbon monoxid is 300 times greater than the affinity for oxygen (Haldane). It probably also has a distinct toxic action on tissues.

Bronchopneumonia is found to have been a frequent complication in those who died several days after being poisoned by the gas. It will be remembered that the last two deaths recorded above were probably directly due to a pneumonic condition of the lungs. Postmortem, the blood usually flows freely, is a bright, cherry-red, and has a characteristic appearance as seen by the spectroscope.

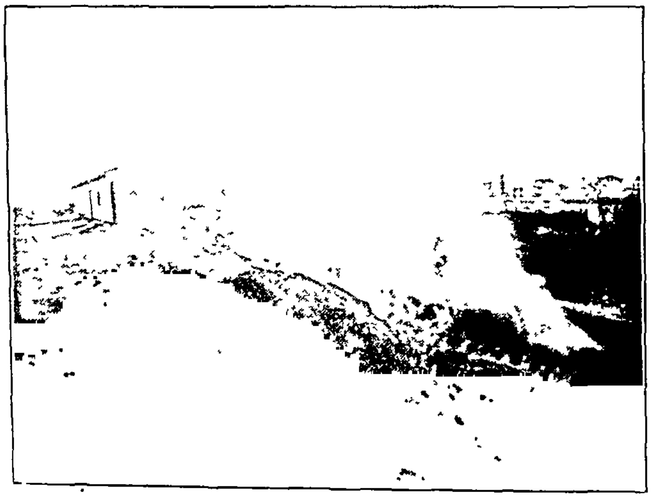

Fig. 3.—Camp after dump was torn up. The photograph was taken after it had rained, and clouds of steam are seen rising from the hot cinders.

In some cases of carbon monoxid poisoning the victim may succumb instantly, while in others there are often prodromal symptoms, as throbbing or feeling of pressure in the temples; epigastric distress, nausea, vomiting; weakness in the legs, often described as "caving in"; severe, bursting headache, or coma.

Carbon monoxid poisoning may become chronic, under which condition the patients will become anemic, irritable and neurasthenic, and complain of headache, anorexia, loss of weight, backache, vertigo, and gastro-intestinal disorders. There will also exist a polycythemia and a leukocytosis of the eosinophil forms.

Carbon monoxid (CO) poisoning should not be confused with carbon dioxid (CO_2) poisoning, symptoms of which begin with pressure in the head, vertigo, ringing in the ears, sparks before the eyes, disturbances of respiration, such as air hunger and pain in the chest, and sometimes convulsions. Chronic carbon dioxid poisoning probably does not exist. This gas must be in much greater concentration to be poisonous, about 4 per cent. causing distress symptoms and approximately 10 per cent. causing death.[3] Carbon monoxid is a dangerous poison because of its odorless, colorless and tasteless properties, and its presence should alway be suspected in such cases of sudden prostration and death as here related.

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[2] Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916.

[3] Rambousek, J.: Industrial Poisoning, London, Edward Arnold, 1913.

A COMPARISON OF TRICRESOL AND CHLOROFORM AS A PRESERVATIVE IN ANTIMENINGITIS SERUM *

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AND
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Until the fall of 1914, the Research Laboratory continued to use tricresol as the preservative in the antimeningitis serum, as had previously been done at Rockefeller Institute. Late in 1914, the tricresol was replaced by chloroform on account of the discussion in regard to the toxic effects of tricresol, started mainly by reports of Kramer[1] of Cincinnati.

While the discussion on this subject is familiar to many, it may be summarized briefly: Kramer reported, in 1913, a series of cases in which death followed the administration of tricresol serum, and he attributed these deaths to the tricresol, which he held depressed the medullary center, reaching it especially in young children through the central canal of the cord. Kramer also reported the results of experiments on dogs, which were not convincing. Flexner[2] next published an article in which he enumerated the various possibilities of danger in the use of the serum, anaphylaxis, liberation of toxin through the destruction of the meningococcus, and especially increased pressure. He pointed out that, since in the cases reported by Kramer the doses were large and were administered by a syr-

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* From the Meningitis Division, Bureau of Laboratories, New York City.

[1] Kramer, S. P.: A Possible Source of Danger in the Use of Antimeningitis Serum, The Journal A. M. A., May 3, 1913, p. 1348.

[2] Flexner, Simon: Accidents Following the Subdural Injection of the Antimeningitis Serum, The Journal A. M. A., June 21, 1913, p. 1937.

inge, it was highly probable that increased pressure was the cause of death, and, furthermore, that accidents have occurred after the administration of serum containing no preservative. Hale[3] showed that the intraspinal injection of tricresol in dogs produced considerable respiratory difficulty which he interpreted as paralysis of the respiratory center. Fitzpatrick, Atkinson and Zingher[4] in our laboratory showed that in dogs the pressure seemed to be the important factor, and that the gradual administration of serum with 0.3 per cent. tricresol did no harm. Auer[5] showed that this respiratory difficulty was much less marked in monkeys, and that it was not due to paralysis of the respiratory center, but to a stimulation of the inhibitory function.

One seems justified in concluding from his experiments that while tricresol affects the medullary center of monkeys somewhat more than ether or chloroform, monkeys tolerate repeated large doses of serum containing tricresol, and that dangerous changes in respiration and blood pressure are due to increased intraspinal pressure. Auer's article contains a very comprehensive study of the subject from the experimental standpoint.

As stated above, serum containing tricresol, at first 0.3 per cent. and later 0.2 per cent., was used by the Meningitis Division of the Bureau of Laboratories from August, 1910, until December, 1914. During this time, the serum was administered about 600 times and to children of all ages, fourteen of the patients being less than 1 year old. As there had never been a fatality immediately following the injection, it seemed improbable to us that the tricresol could be a very dangerous factor even to young children, as Kramer had declared. In a few instances collapse had followed the administration of serum when large doses were used. Later, with smaller doses, these occurrences ceased.

In December, 1914, the use of the chloroform serum was begun. The feeling developed, in time, among those of the division who had used both serums, that the chloroform was more irritating. This conclusion was not reached at once. There is, of course, a great difference in individuals in their reaction to pain. Moreover, the registration of pain in many of our patients is unreliable if they are delirious, stuporous or too young. In time, however, it was noted, in the case of a number of rational and intelligent patients who had behaved well during the puncture and withdrawal of fluid, that the injection of the serum was accompanied by excruciating pain, so that they were unable to keep from crying out and struggling. This added greatly to their dread of the treatment, and to the objection of the family to the continuation, and interfered with the proper regulation of dosage, as the crying out and struggling increased the intraspinal pressure and prevented the easy introduction of the serum. Finally, a lot of serum containing tricresol was prepared so that comparative studies might be carried out in the same individual.

Case 1.—A girl of 16 had received four injections of chloroform serum, suffering extremely each time, so much so that each injection had to be stopped before 20 c.c. were given. She then received six injections of tricresol serum. These were accompanied by practically no discomfort. At the second injection she fell asleep before it was finished. It was also possible to increase this dose to 25-28 c.c., which seemed desirable in this case as the infection was very resistant.

Case 2.—A man, aged 19, had received several doses of chloroform serum accompanied by great pain each time. The tricresol serum caused practically no pain.

Case 3.—A child of 4 years, who had received three doses of tricresol serum without struggling, struggled and cried during the administration of one dose of chloroform serum.

Case 4.—An Italian boy of 5½ years complained of severe pain with the chloroform but not with the tricresol.

Case 5.—A baby was given one dose of tricresol without any marked reaction. When given a second dose of chloroform serum, the baby struggled violently.

Case 6.—A boy of 12 years struggled furiously, three men being needed to restrain him, during two injections of chloroform serum. He was quiet during the administration of tricresol serum.

These six cases in which both tricresol and chloroform serum were used, in addition to our observations in cases in which either the chloroform or the tricresol serum alone was received, show very conclusively that chloroform serum is far more painful than tricresol serum. It may be stated that the injection of serum is practically always *followed* by pain in the legs and general discomfort. It is the sensation *during* injection to which we refer.

TABLE 1.—BACTERICIDAL ACTION OF CHLOROFORM IN 0.2 PER CENT. DILUTION

Organisms and Controls	Exposure Time				
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.
B. coli	++++	++++	++++	++++	++++
Staphylococcus	++++	++++	—	++++	++++
Streptococcus	++++	++++	++++	++++	++++
Meningococcus	++++	++++	++++	++++	++++
Serum control	—	—	—	—	....
Bacterial suspension control	+	+	+	+	....
Saline solution control	—	—	—	—	....

The observations in the cases reported above were made by several physicians as well as by members of the meningitis division.

It is possible, since it belongs to the phenol group, that tricresol, like phenol (carbolic acid), may exert a local anesthetic action. Indeed, it would seem that it must be so, as chloroform is added to practically all the serum when it is first withdrawn; consequently the tricresol serum contains tricresol in addition to the chloroform.

Whether or not because of the difference in the preservative of the serum, it may be stated that the mortality of the cases treated by the meningitis division from Dec. 1, 1913, to Dec. 1, 1914, when all serum contained tricresol in addition to the chloroform, was 30 per cent., while for the following year, when chloroform was present, it was 38 per cent.

Tricresol has a marked bactericidal action, in vitro, on the meningococcus, and also exerts within forty-eight hours some bactericidal effect on organisms that might accidentally contaminate the serum. Chloroform possesses much less bactericidal action and would, therefore, seem to be of limited value as a preservative.

These points are illustrated in the experiments:

Experiment 1.—*Bactericidal Action of Chloroform in 0.2 per Cent. Dilution.*—Before the experiment was begun, normal horse serum was freshly drawn and cultured on glucose ascitic agar for twenty-four hours. Direct dilution of the chloroform in 50 per cent. normal serum was made to secure a better solubility of the chloroform.

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[3] Hale, Worth: The Cause of Death from Subdural Injections of Serum, Bull. 91, Hyg. Lab., U. S. P. H. S., December, 1913.

[4] Fitzpatrick, C. B.; Atkinson, J. P. and Zingher, Abraham: The Comparative Importance of Pressure and of Toxicity of Trikresol in Subdural Injections of Sera, Collected Studies from the Bureau of Laboratories, City of New York, 1914-1915, p. 37.

[5] Auer, John: The Effect of Intraspinal Injections of Serums with and without Preservatives, The Journal A. M. A., June 6, 1914, p. 1799.

The organisms used, after a growth of each organism had been obtained on glucose ascitic agar for twenty-four hours, were: the colon bacillus, the staphylococcus, the streptococcus and the meningococcus (second generation). Three c.c. of sterile saline solution were used in washing off the growths of every organism excepting the streptococcus, for which 2 c.c. of saline solution were used in order to obtain a greater number of bacteria. This constituted the bacterial suspension for the experiment.

After both the bacterial suspension and the chloroform dilutions had been thoroughly shaken, equal quantities of the material were mixed and shaken up for a few minutes, 0.5 c.c. of each being used.

The bacteria were exposed to the action of the disinfectant for periods of time of half an hour, one hour, two hours, four hours and twenty-four hours. At the expiration of the half hour, or first exposure, the mixture was planted on slants of glucose ascitic agar, and two loopfuls of this used for all the subsequent exposures.

At the end of the four-hour period all the slants were placed in the incubator at 37.5 C.

Controls were also made of the serum dilutions, bacterial suspensions and the saline solution used throughout the experiment.

Experiment 2.—*Bactericidal Action of Tricresol in 0.1, 0.2 and 0.3 per Cent. Dilutions.*—In this experiment, the procedure was the same as that for Experiment 1. The disinfectant dilutions were made up directly in normal serum, a 100 serum being used. A strain of meningococcus of the second generation was used (Table 2).

TABLE 2.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION ON THE MENINGOCOCCUS, 100 PER CENT. SERUM

Dilution, Per Cent.	Exposure Time				
	½ Hour	1 Hour	2 Hours	4 Hours	24 Hours
0.1	++++	++++	++++	++++	—
0.2	++++	++	—	—	—
0.3	—	—	—	—	—

TABLE 3.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION, 50 PER CENT. SERUM

Organisms and Controls	Exposure Time					
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.	48 Hrs.
B. coli						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+++
0.3 per cent. dilution	......	......	......	......	—	—
Staphylococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	++++	++++
0.3 per cent. dilution	++++	++++	++++	++++	++++	++++
Streptococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+
0.3 per cent. dilution	++++	++++	++++	++++	—	—
Bacterial suspension control	+	......	......	......	+	+
Serum control	—	......	......	......	—	—
Saline solution control	—	......	......	......	—	—

CONCLUSIONS

1. The bactericidal action of tricresol on possible contaminating bacteria is much superior to that of chloroform.

2. The marked bactericidal action of the tricresol on the meningococcus in vitro may be of advantage in vivo.

3. When tricresol is not used, the pain of injecting the serum is so great as to constitute a serious drawback in the treatment of meningitis, not only on account of the resulting objection on the part of the patient and the family, but also on account of the difficulty of regulating the dosage when the patient is struggling.

SUGGESTED FORMULAS FOR PARAFFIN FILMS *

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The popular propaganda for "Ambrine" has brought the subject of paraffin-film treatment of burns into prominence. The results are said to be better than are obtained by other methods of treatment; however, neither "Ambrine" nor any other preparation could accomplish "miracles." The principle of the method is supposed to be mainly if not solely mechanical; the film of paraffin being impervious, forms a protection to the exposed tissues. On the other hand, it can readily be removed when desired. Perhaps the paraffin also forms a sort of scaffolding for the feeble granulations.

The method at least deserves scientific investigation. Such investigation, however, is hampered by the optimism which has developed in the minds of even medical men, regarding the efficacy of this treatment, resulting from the sensational accounts of the use of the secret French preparation, "Ambrine," in the present war. Another serious obstacle is the secrecy of the preparation so exploited, since it complicates any attempt at improvement. If the principle of paraffin films is a useful one, it is open to question that "Ambrine" is the *ne plus ultra* of these films. It is one of the disadvantages of the secrecy that we do not know what attempts have been made to secure the best possible preparation; and in the absence of this knowledge, it is reasonable to suppose that the preparation is capable of modifications which might be improvements. Perhaps extensive investigations have already been made in this direction; but of this we know nothing. If they have been made, we do not know whether or not all the possible lines of modification were taken into account.

The subject was brought to my attention by Dr. George W. Crile, and after weighing the foregoing considerations, it has seemed to me worth while to devise a series of paraffin combinations, so that the advantages of the various types of films could be tried out fairly. Since I started on this investigation, two American preparations have been placed on the market. Both have followed the French example of keeping the composition secret, and both therefore are open to the foregoing objections. This secrecy makes a systematic comparison of the different films difficult. However, I have compared the physical properties of these commercial preparations with the formulas which I have given herein. Since experimentation with preparations of unknown composition cannot add much of permanent value to our knowledge, and is apt to be largely wasted, it seems worth while to publish the formulas and properties of our preparations without awaiting their clinical trial. Indeed, the very object of this publication is that they may receive such clinical trial.

In planning the formulas for these waxes, I intentionally avoided a slavish imitation of the pretended composition of the proprietary preparations. On the contrary, I have aimed to make the formulas simple, each containing at most two constituents; to make the manipulations so simple that the preparations could be made independently, and if possible extemporaneously, by any pharmacist, and would thus be accessible to any surgeon who cared to try them; to vary these formulas so as to produce preparations with properties which differ considerably, and to devise simple methods for comparing the relevant physical properties. I have intentionally refrained from adding any deodorant, antiseptic, coloring matter, etc. I believe that the first step should be to determine the suitability of these films from a purely mechanical standpoint. After the suitable type or types have been selected, it will be an easy matter to modify them by such additions.

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* From the Pharmacological Laboratory, Western Reserve University, School of Medicine.

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The significant properties of the films appear to concern in the first place the melting point. This should be not much lower than 48 C., and not much higher than 53 C. Within this range, I incline to believe that the melting point is practically immaterial.

The hardness of the wax may be important. The harder the wax, the more firm is the support which it affords; but on the other hand, the softer films are probably more "soothing." It is quite possible that different cases may demand different types of films in this respect.

A further important property is the strength of the film (fragility). It involves at least two factors: (1) ductility, the coherence of the film against pulling and kneading—a property which reflects the resistance of a film against stretching; and (2) pliability, the resistance to fracture on bending.

The first of these (the resistance to pull) can be determined only roughly by comparative methods; there is no convenient quantitative measure of this, although one could perhaps be devised. The resistance to breaking can be determined quantitatively in relation to the temperature: the more fragile films will break on bending at a relatively high temperature, while the more plastic films can be bent at relatively low temperatures.[1]

General Methods of Preparation.—The mixtures were prepared simply by melting the ingredients in a water bath, after which the mixture was heated to 145 C. for sterilization.

Melting Point Determination.—This was attempted by the U. S. P. method, which consists in drawing the melted wax into a capillary tube; cooling for a certain period; attaching the tube to a thermometer; immersing in a water bath, and heating slowly until the melted wax begins to rise in the capillary tube.

The last clause of this method was not found very satisfactory with the more viscid fats: the slow heating gave a variable melting point usually several degrees higher than that obtained by immersing the capillary directly into the bath, which had previously been heated to the required temperature. The explanation probably lies in the viscidity of the oil when the column in the capillary tube is heated throughout, as it must be when the heat is raised gradually. Evidently the lowest melting point must be the correct one, so that our modification appears fully justified.

Determination of Hardness.—This was determined at 22 C. by trying the cakes of the preparations on each other, seeing which would indent the other. Since absolute accuracy was not necessary, the preparations were made into a limited number of groups, designated by Roman numerals according to their hardness.

Formation of Membranes.—It was aimed to produce films under conditions which would approach physically those of clinical use. For this purpose, the preparations were melted on a water bath. A sheet of plate glass was meanwhile warmed to from 38 to 40 C. by immersion in a water bath kept at this temperature. When the paraffin was melted, the plate was taken from the bath and the melted wax poured on the moist plate glass and spread with a hot spatula. The plate with the film was then immediately immersed in the 38 to 40 C. water, kept there for a few minutes, and then lifted off with a spatula. This detachment of the film furnishes a preliminary idea of its general properties.

Further experience indicates that the method of preparing these films does not affect materially their significant behavior to temperature limits. Any method that yields fairly thin films may therefore be employed. At present, I make the films by pouring a teaspoonful of the melted wax on the surface of water at about 40 C.

Determination of Strength of Film.—The films were placed in a bath at 38 C. and then gently manipulated by kneading and pulling, noting their coherence, thinness of membranes that could be formed from them; the ease with which they are torn on pulling, etc.

Determination of Breaking Temperature.—The films were immersed in a bath of a given temperature for a few minutes and then bent on themselves. At the lower temperatures, this causes the film to break sharply at the crease. At the higher temperatures, the films can be doubled without breaking.

The temperature at which breaking just occurs varies for each wax, and appears to be an objective and very useful index of its fragility. Since great accuracy was not necessary, the temperatures were determined only approximately, and at intervals of 5 degrees. In the table, the lower temperature is that at which the film breaks; the upper temperature that at which it can be bent without breaking.

Determination of Ductility Temperature.—The films are placed in warm water and pulled. The water is gradually cooled, noting the temperature when the film breaks with a straight fracture, without stretching.

The lower the temperature at which the film begins to break on bending or pulling, the greater is its pliability or ductility.

The individual preparations and their properties are shown sufficiently in the accompanying table. It is probable that clinical trials will introduce new factors so that the usefulness of the various preparations cannot be judged altogether from the physical results given in this paper.

(The cost of these preparations is low; paraffin, the principal ingredient, is at present about 15 cents per pound.)

For purposes of simplification the different preparations can be arranged into a number of groups. The most distinctive feature is the hardness, ranging from the stiff beeswax to the gelatinous petrolatum. It is this property, more than any other, which determines the mechanical usefulness of the individual preparations for special purposes. Aside from this, it is desirable that the preparation should have a low melting point, and that it should remain pliable at a relatively low temperature.

With these points in mind, the following grouping appears most promising; it is arranged in descending order of hardness, giving the number of the formulas under each class, in the order of preferance:

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[1] Further experience indicates that ductility may be expressed quantitatively by the temperature at which a thin film breaks sharply when pulled in a straight line.

Class I: Paraffin, Formulas 17, 18 and 16.

Class II: Paraffin-wax mixtures, Formulas 11, 12, 10, 19, 15 and 6.

Class III: Paraffin-Asphaltum mixtures, Formulas 25 to 27.

Class IV: Paraffin-oil mixtures, Formulas 13, 23, 24, 8, 14, 9 and 4.

Class V: Paraffin-petrolatum mixtures, Formulas 5, 1, 2 and 3.

PREPARATIONS AND THEIR PROPERTIES

Formula No.	Composition			Melting Point (C.)	Degree* of Hardness at 22 C.	Fragility Temp. (Break on Bending) (C.)	A. Formation of Membrane B. Strength of Film at 38 C.; (Break on Kneading and Pulling)
0 =	"Ambrine"			51	III	18-24	A. Coherent; detaches easily; fairly soft B. Very good resistance and pulls very thin; still ductile at 33°.
00 =	Petrolatum (yellow)			50.5	0	.....	
000 =	Paraffin (stock)			53	...	.....	
1 =	Paraffin Petrolatum	000 00	100 20	52	II	30-35	A. Greasy, crumbly and weak, but detaches easily and sufficiently intact B. Poor resistance, though better than 2
2 =	Paraffin Petrolatum	000	100 100	49.5	I	35-35	A. Weak, greasy, noncoherent; difficult to detach; unworkable B. Very weak; crumbles
3 =	Paraffin Petrolatum	000 00	100 300				A. Ointment consistency at 43 C.; too soft to use
4 =	Paraffin‡ Venice turpentine		110 22	52.5	II	35-35	A. Detaches well, but soft and crumbly; slightly greasy B. Soft and crumbly
5 =	Paraffin‡ Petrolatum		110 11	52.5	III	35-37	A. Rather weak, although sufficiently coherent to form a film B. Soft and crumbly; very weak
6 =	Paraffin‡ Japan wax		110 22	52	IV	35-35	A. Hard but crumbly; not sufficiently coherent B. Very crumbly (practically like 5)
7 =	Japan wax			50	IV	37- ?	A. Does not solidify promptly when undercooled; does not detach except by scraping B. Hard, brittle and crumbly; sets very slowly.
8 =	Paraffin‡ Olive oil		110 11	53	III	35-35	A. About like 11 B. Greasy and quite crumbly; very weak
9 =	Paraffin‡ Castor oil		110 5	53.5	IV	30-35	A. Solid, but not very strong, and rather crumbly B. Quite brittle and crumbly; soft
10 =	Paraffin‡ Yellow beeswax		110 11	52.7	IV	25-30	A. About like 11 B. Fairly strong; can be pulled very thin; somewhat more brittle than "Ambrine"
11 =	Paraffin‡ Spermaceti		110 11	53.5	III	25-30	A. Soft, but very coherent, and detaches well; *very* promising B. Good, about like "Ambrine"
12 =	Paraffin‡ Stearic acid		110 11	53.25	IV	25-30	A. About like 11 B. About like "Ambrine"; a little harder and probably a trifle more brittle
13 =	Paraffin‡ Cacao butter		110 11	53	III	35-37	A. Soft, but detaches well; very promising B. Soft and breaks
14 =	Paraffin‡ Cacao butter		110 22	52	III	35-37	A. Not greasy, but soft and crumbly, and not sufficiently coherent B. Soft and fragile
15† =	Paraffin‡ Resina		110 11	53.5	V	30-30	A. Very slightly greasy; detaches and coheres; but not quite as good as 16 B. [illegible]
16 =	Paraffin‡			52	IV	30-30	A. [illegible] ising B. [illegible] ...ne," but pulls out well; ductile at 36.5°; not at 33°.
17 =	Paraffin, "embedding," M. P. 48 C.			48	III	25-30	A. Coherent and detaches quite well B. Practically like "Ambrine"
18 =	Paraffin, "embedding," M. P. 52 C.			51.5	IV	24-25	A. Good film, but rather fragile B. About like "Ambrine," a little harder and more fragile and not quite as plastic
19 =	Paraffin‡ Cera flava		110 22	53.75	IV	25-30	A. Strong and coherent film B. About like "Ambrine;" slightly more brittle.
20 =	"Mulene"§			52	IV	16-18	A. Coherent, but detaches with difficulty B. About like "Ambrine;" slightly more brittle.
21 =	"Parresine"§			48	II	25-25	A. Soft, but coheres well B. About like "Ambrine," but slightly more fragile.
22 =	Yellow beeswax			(62:65 U.S.P.)	II	? -16	A. Dry, strong and coherent; not easily detached B. Fair resistance
23 =	Paraffin‡ Liquid Paraffin		110 5	49.5	II	33-36	B. Just ductile at 36.5°; not at 33°.
24 =	Paraffin‡ Liquid Paraffin Beeswax		110 5 10	52	II	33-33	B. Just ductile at 36.5°; not at 33°.
25 =	Paraffin‡ Asphalt Varnish		110 11	48.5	II	25-28	A. Dry, very extensile, coherent, somewhat adhesive. B. Just ductile at 28°.
26 =	Paraffin‡ Asphalt (Trinidad or Bermudez Asphalt Cement, 1 to 3%; or Texas Asphalt, 1%)		110 1 to 3	50.5-51	IV	27.29.5	A. Very pliable, somewhat adhesive B. Just ductile at 33-36°.
27 =	Paraffin‡ Texas Asphalt		110 5	51.5	IV	29.5-33	A. Pliable, but too adhesive B. Just ductile at 33-36°.
28 =	"Soft Paraffin"			50.5	III	26.5-28.5	A. Much more ductile than Formula 16 at body temperature B. Just ductile at 28.5°; not at 26.5°
	Cacao butter			32.8	Not determined personally		
	Stearic acid			56	Not determined personally		
	Spermaceti			(42-50 U. S. P.) not determined personally			

* V is highest; zero lowest.

† Resin and Venice turpentine do not appear to mix well with paraffin, and must be kept stirred.

‡The brand of paraffin used in these experiments was "Parowax," a trade name applied to paraffin marketed by The Standard Oil Co. of Indiana. It is a rather hard paraffin; softer varieties would be preferable. It should be remembered that the various oil refining companies have individual trade names of their own for their products.

§Preparations Nos. 20 and 21 are proprietary formulas.

Class I.—*Simple Paraffins* (*17, 18, 16*).—These comprise the commercial paraffins of melting points of from 48 to 53 C. They are quite hard (generally IV of the scale), and break between 25 and 30 C. They would be used when a relatively stiff film is desired, which would separate clean from the wound. Their mechanical properties are quite similar to Ambrine. They are perhaps somewhat more fragile, but the difference does not seem important. They are the simplest and cheapest agents. Presumably any available "paraffin" could be used; but when a choice is possible, samples melting close to 50 C. would be preferred. It should be understood that commercial paraffins are complex mixtures of hydrocarbons and that the various commercial brands may differ in their physical properties, such as melting point, hardness and flexibility. It is doubtful, however, whether these differences are of practical importance in the clinical use.

Class II.—*Paraffin-Wax and Related Mixtures.*—The addition of small amounts of various waxes, etc., modifies the properties of paraffin somewhat; but the modifications are relatively slight, and I doubt whether they have any real importance. I tried mixtures with beeswax, 10 per cent. (Formula 10) and 20 per cent. (Formula 19); and with 10 per cent. of one of the following spermaceti (Formula 11); stearic acid (Formula 12) and resin (Formula 15). Nos. 15 and 19 have rather high melting points. The others stand so close to the simple paraffin that I doubt the advisability of giving them an extended trial. If experimentation should appear desirable, I would advise Formula 11 (the spermaceti mixture); or if this is too expensive, Formula 12 (stearic acid mixture).

The *proprietary mixtures of secret composition* also belong in this general class:

"Ambrine" (Formula 0), as I have said, approaches very closely to the simple paraffins.[2] It is rather more plastic and less brittle; but the difference does not impress one as important.

"Mulene" (Formula 20) also comes very close to the simple paraffins, and to Ambrine. The same remarks apply to both.

"Parresine" (Formula 21) is a rather different article. It is softer and more fragile than "Ambrine"; but on the whole it does not depart seriously from the paraffin type.

Class III.—*Paraffin-Asphaltum Mixtures.*—These are distinctly more pliable and more adhesive than the plain paraffin, and can be made into thinner films. Theoretically, these properties would be advantageous; practically, I doubt whether the advantages are important. The paraffin and asphalt do not form perfect mixtures, and must be kept stirred.

A mixture made with 10 per cent. of "asphalt varnish" possessed the desirable qualities, but since the composition of the asphalt furnished is complex and probably variable, no further experiments were made. Other preparations were made with the semisolid asphalts, such as Trinidad or Bermudez "asphalt cement," from 1 to 3 per cent.; or Texas asphalt (Formula 26). These are not quite so plastic as the varnish formula, but nevertheless are quite promising. Higher proportions are less desirable, such as 5 per cent. of Texas asphalt in Formula 27.

Class IV.—*Paraffin-Oil Mixtures.*—These are considerably softer than the paraffins, and also considerably weaker (more friable); however, they are fairly coherent. They would perhaps be preferable in the early stages of treatment, since they would be somewhat emollient. The most promising is the mixture with 10 per cent. of oil of theobroma (cacao butter, Formula 13); then come the one with 5 per cent. of liquid petrolatum (Formula 23), and this with beeswax (Formula 24), and that with 10 per cent. of olive oil (Formula 8). That with 20 per cent. of cacao butter (Formula 14) is scarcely sufficiently coherent. That with 5 per cent. of castor oil (Formula 9) was unpromising. The mixture with 20 per cent. of Venice turpentine (Formula 4) had the properties of Class V, but appeared undesirable.

Class V.—*Paraffin-Petrolatum Mixtures.*—These differ materially from the other classes. They are very soft and might be termed "solid ointments." They are rather greasy, and crumble easily; No. 3 (75 per cent. petrolatum) was really a cerate and would not form a workable film. No. 2 (50 per cent. petrolatum) would also be practically unworkable. Twenty per cent. petrolatum (Formula 1) and 10 per cent. petrolatum (Formula 5) form weak, but manageable films. The last (Formula 5) would be worth trying when a very soft film is desired, for instance, on very sensitive surfaces.

Application to the Skin.—A selected series of preparations were applied to the skin in the same manner as they would be used clinically. A strip of skin about an inch wide was painted with the melted wax; on this was laid a very thin layer of cotton and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with a second preparation, and so on. (This will be a very suitable method of comparing the preparations clinically.) The strips are covered with a bandage and left on for at least an hour. The following presented no marked differences:

"Parawax" Paraffin	(16)
Paraffin-spermaceti	(11)
Paraffin-stearic acid	(12)
Paraffin, 48°	(17)
Paraffin-theobroma	(13)
"Ambrine"	(0)
Paraffin-petrolatum	(5)
"Mulene"	(20)
"Parresine"	(21)
Paraffin-beeswax	(10)
Paraffin-resin	(15)
Paraffin-liquid Paraffin	(23)
Paraffin-beeswax-liquid paraffin	(24)
Paraffin-asphalt mixtures	(25 and 26)

Paraffin-asphaltum gave a film that was somewhat adherent, but that was smooth, strong and so pliable that it could be wound about a pencil without cracking.

CONCLUSIONS

The preparation and mechanical properties of a series of paraffin-film mixtures suggest that the most important mechanical property of such films from the therapeutic standpoint is their hardness. It is suggested that several degrees of hardness might possess advantages under different conditions.

Surgeons who desire to experiment with the paraffin treatment of burns are urged to use simple preparations of known composition, so that their results can be compared, and so that any deficiencies may be met, and improvements made intelligently.

The physical and mechanical properties of a series of paraffin and mixtures are described. *Ordinary*

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[2] In a preliminary study of paraffin mixtures in the A. M. A. chemical laboratory, Ambrine was found to contain about 96 per cent. unsaponifiable matter (paraffin).—Ed.

paraffin, melting between 48 and 53 C. (118-128 F.), preferably about 50 C. (122 F.) appears to possess practically the mechanical properties of the French preparation, and is urged as the standard of comparison.

Paraffin-Asphaltum (Formula 26) gives a preparation of superior pliability.

The following additional formulas are suggested for clinical trial as preparations of increasing softness.

Paraffin-Spermaceti (Formula 11): Paraffin, 10 parts; spermaceti, 1 part.

Paraffin-Theobroma (Formula 13): Paraffin, 10 parts; theobroma oil, 1 part.

Paraffin-Petrolatum (Formula 5): Paraffin, 10 parts; yellow petrolatum, 1 part.

In comparing these films with each other, or with proprietary formulas, claimed points of superiority should be clearly established. Finally, experience may show it to be advantageous to add to the simple combinations I have suggested one or more medicinal agents such as resorcin, eucalyptus, scarlet red, etc.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 981)

NUTRITION IN NEPHRITIS

Diet in Acute Nephritis.—As already mentioned, a modified milk diet should be prescribed for the patient suffering with acute nephritis. The milk may be given hot or cold, preferably hot, sometimes predigested, sometimes diluted with a small amount of charged water, according to the patient's digestive ability. Fresh skimmed milk is frequently best for adults. As the phosphates are insufficiently excreted in nephritis, the phosphates of the milk may be precipitated into the intestine by precipitated calcium carbonate (from 0.5 to 1 gm.) taken three or four times a day. This, together with the phosphates of the milk, forms an insoluble compound, which is excreted by the intestine. Barley water is another beverage valuable for its nutritive properties, as a drink, and for its demulcent action on the gastro-intestinal tract. It may be advisable to give the patient well cooked and strained oatmeal gruel once or twice a day. Other simple, well prepared cereals may be substituted for the oatmeal.

As water is difficult of excretion in acute nephritis, the amount allowed the patient should be limited, according to the amount of urine excreted and the extent of the edema.

The patient's nutrition may be well maintained, not only for many days, but even for several weeks if necessary, on as limited an amount as 60 gm. of protein a day, although as soon as the kidney excretion is sufficiently increased it is advisable to increase this allowance to 90 or 100 gm. a day. The retained nonprotein nitrogen of the blood indicates the advisability of increasing or decreasing the protein element. Two quarts of milk contain slightly more than 60 gm. of protein; but many patients cannot well digest that amount of milk, and if the nitrogenous waste is not excreted by the kidneys it will not be readily excreted by the intestine or with the help of profuse perspiration. However, unless uremia or entire suppression of the urine contraindicates this course, a diet of from 1 to 3 pints of milk a day, barley water being used to dilute the milk or as an additional drink, together with a thin oatmeal gruel once or twice a day, furnishes sufficient nourishment during the active period of acute nephritis or during an acute exacerbation in chronic nephritis. It may be advisable to add cream to the milk in the proportion of one-half pint of cream to 3 pints of milk, or it may be better to use skimmed milk, according to the patient's ability to digest milk, the amount of gastro-intestinal disturbance caused, the ability of the kidneys to function, and whether or not the patient is uremic.

When the volume of urine begins to increase in this disease, there is an added excretion of solids. In the later stages of chronic nephritis this is frequently not true. When the kidneys are recovering from acute inflammation, although albumin and casts may persist in the urine for some time, the diet may be gradually increased by adding more cereal, rice, potatoes, eggs and fruits which do not contain benzoic acid, such as oranges, lemons and apples. It is as well to omit meat from the diet as long as albuminuria continues. If this condition continues longer than two months, however, the case becomes one of subacute or chronic nephritis, and the diet should be arranged accordingly, meat being allowed in small quantities. As soon as convalescence is established in acute nephritis, the patient should be given small doses of iron daily, and certain fresh vegetables, including beans and peas, which are rich in protein, should be allowed. Toast or zwieback may be given early in the treatment, the amount being gradually increased during convalescence.

The stage in the disease at which the amount of water allowed the patient should be increased is a question for careful consideration. If after a number of days the edema has not disappeared and the kidneys excrete only a small amount of water, it may be well to try the effect of giving more liquid. If this results in an increase in urine, the patient's system requires the added water; if, on the other hand, the urine is not increased, the water intake should again be reduced to the minimum. However, when the kidneys are functioning well there is no advantage in forcing them to overwork by administering large amounts of water.

If the necessary treatment causes profuse perspiration, and if the impairment of kidney function causes the retention of poisons and nonprotein nitrogen in the blood, these poisons must become more concentrated. The same is true when it is deemed advisable to produce watery bowel movements. Consequently, the effect of profuse catharsis and of profuse sweating on the character of the blood must be considered, as uremia may be precipitated by too strenuous treatment. Therefore, when profuse sweating occurs, or if profuse catharsis is caused, plenty of water should be imbibed. Although many toxins and salts may be excreted by the bowels, only a small portion of the poisons retained by insufficient kidneys is excreted by the skin, which also carries off a small amount of salts, as evidenced by the staining of the clothing, the finding of crystals on the skin, and the odor of urine from the perspiration. Emphatically, however, it is most unlikely that profuse perspiration, or catharsis to prostration, is indicated or of advantage in acute nephritis or in uremia. A diet such as will reduce nitrogen waste and salts to the minimum, and, if necessary, venesection to relieve the system of a certain amount of toxin-carrying blood, appears more rational than the doubtful method of concentrating the poisons in the blood.

If uremia apparently is imminent, the diet should be reduced to the smallest amount, perhaps a pint of milk and a pint of barley water a day. If edema is extensive, the amount of water taken may be reduced to a tablespoonful or an ounce at a time. If the patient does not improve rapidly, the treatment becomes that of uremia.

When the elimination of salt from the diet has resulted in the absorption of the edema or effusions to a certain extent, small amounts of salt and a little more water may be added to the diet. If the patient continues to improve and the edema does not increase, the salt and water may be gradually increased to the normal amount. Too long abstinence from sodium chlorid is detrimental to the tissues, and interferes with the normal production of hydrochloric acid in the stomach.

When an acute congestion or a subacute inflammation of the kidneys develops on a chronic nephritis, the treatment becomes that of acute nephritis.

Diet in Chronic Nephritis.—In changing the diet of a patient suffering with chronic nephritis, it should be recognized that it is inadvisable, for the sake of assisting the kidneys to overwork or injure other parts of the body. Care must be taken not to deprive the patient too long of needed elements of nutrition; nor should his fuel be radically changed from anthracite to bituminous coal, so to speak, as this will result in a radical change in his digestion and metabolism. A temporary radical change in diet or a gradual change to a radically different diet may be advisable; but the effect of this procedure on the patient must be carefully noted.

The necessity of withholding salt from the diet has already been discussed. The amount of nitrogen allowed in chronic nephritis is also of great importance; frequently nitrogen may be excreted when the salt is not; but the excretion of both nitrogen and salt is generally impaired.

Frothingham and Smillie[104] find, as have others, that the phenolsulphonephthalein excretion is not much modified by diet. They find that the blood pressure is not much lowered in chronic nephritis by a low nitrogen diet, but it does fall on rest, and when a low salt diet has eliminated retained sodium chlorid.

When the nonprotein nitrogen of the blood is increased, a low nitrogen diet generally reduces it, so that apparently the only valid reason for giving a very low protein diet in chronic nephritis is the elimination of nitrogen from the blood. High protein diets in chronic nephritis should be entirely prohibited, although, unless the case is one of uremia, a sufficient number of calories of protein must be given to keep up the strength of the patient.

No disease requires more careful regulation of diet than chronic nephritis. Excess in any elements of food necessary for nutrition causes loss of appetite, indigestion and retention of waste matter.

Not more than 90 gm. — or 3,000 calories of protein, represented mostly by carbohydrates and fats — and salt and water in exactly sufficient quantities should compose the diet when elimination is fairly good with an ordinary amount of exercise. The greater the muscular exercise, provided the elimination is sufficient, the greater the amount of food required. Strenuous physical exercise may, however, cause an increase of nitrogenous waste (especially creatin), which impaired kidneys cannot rapidly eliminate, and poisoning, verging on uremia, may occur. Hence such exercise should be prohibited. Also exposure to severe cold should be avoided.

When nitrogen is retained, the amount of protein consumed must be reduced; in overweight the amount of starch and fat must be reduced; in renal edema the amount of salt must be reduced; in insufficiency of the heart the amount of water must be reduced. When estimating the amount of protein intake, it should be remembered that milk and skimmed milk are rich in proteins. A straight milk diet for a chronic nephritic is usually to be avoided, as quarts of milk must be imbibed in order to obtain the required number of calories of protein. The ingestion of this great quantity of milk causes indigestion, overtaxes the heart, may cause hydremia and edema, and places too great a strain on the kidneys. The caloric and protein value of foods need not be set forth here, as this information is accessible in books on diet.

The diet selected should be based on the excretory ability of the kidneys,[105] the nonprotein nitrogen content of the blood, the condition of the heart, the blood pressure, the state of the digestion, the weight of the patient, and the physical and mental work required of him. The elements of this carefully selected diet should be varied from day to day (though each week may represent the food of the week before), as otherwise the patient loses his appetite and food becomes repugnant to him. It is well for the patient to have nothing but skimmed milk one day each week. This allows his blood and tissues to be relieved of retained excretory products. Also, if possible, one day of complete rest each week is advisable.

It has not been shown that fresh fish, poultry and meat (not rich in purins, as kidneys, sweetbreads, liver and shad roe) are any more harmful to the nephritic patient than are vegetable proteins, such as nuts, peas, beans and oatmeal; but some patients may tolerate vegetable proteins better. There is no special difference between red and white meat, though the latter may be more easily digested. Boiled meats are better than those cooked in other ways because some of the extractives have been lost. For this reason meat soups should not be allowed to patients with nephritis, as they contain mostly meat extractives.

With extensive edema, so-called diuretic drugs are inadvisable; although for a short time they stimulate the kidneys to a slightly greater activity, these organs soon tire and the excretion diminishes.

As a diet treatment the Karell milk cure, first suggested by Phillippe Karell, in 1865, is often successful in edema due to cardiovascular-renal disease, but is not as valuable in other types of dropsy.

The Karell treatment may be carried out as follows: The patient receives 200 c.c. of milk, in four doses, at four hour intervals during the day, beginning early in the morning. This treatment is continued for about a week. The milk may be taken hot or cold, as the patient desires, but he is allowed no other fluid and no solid food. After this period of limited diet he is allowed one egg and a slice of dry toast a day, for two or three days; the food is then gradually increased during the next two weeks by adding an egg, more bread, rice or other cereal, so that at the end of this period he is back to his ordinary diet, that is, the diet considered correct for one in his condition. Whether or not a little meat should be allowed depends on the character of the nephritis and on the absence or presence of uremic symptoms. During this starvation period an enema or some vegetable cathartic should be used. If the patient suffers from extreme thirst, the amount of water allowed may be slightly increased, or if hunger becomes unendurable, he may be allowed a little more toast. If the edema is largely cardiac, he may be allowed a small amount of salt.

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[104] Frothingham, Channing, Jr., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

[105] For test diets for nephritics see Janeway: Am. Jour. Med. Sc., 1916, **151**, 157.

This is a rigid form of the Karell treatment. Modification of this treatment is made by limiting the diet to skimmed milk and allowing more cereal.

Whether digitalis should be given depends entirely on whether the edema is cardiac or renal. If the chronic nephritis is apparently superimposed on a chronic heart insufficiency, digitalis may be of marked benefit; on the other hand, if there are symptoms and signs of uremia, and if the edema is largely due to renal insufficiency, digitalis may make the condition worse. When the blood pressure is high, the retention nitrogen increased, and the output of urinary solids greatly decreased, digitalis is most decidedly contraindicated.

When there is a sudden change in diet, such as a change from milk to meat or from meat to milk, the albumin in the urine may be found temporarily increased, probably returning, in a few days, to the normal amount.

The great danger from meat extractives, meat broths, etc., lies in the creatin present in these extractives, as it has been shown that when creatin and creatinin are increased in the blood the condition is menacing. Hence the patient with chronic nephritis should not be allowed to eat meat stock soups, meat broths, or large quantities of meat. Eggs and milk contain very little creatin, and vegetables not any. When meat is entirely removed from the diet, such creatinin as appears in the urine must be produced by the patient's own muscles.

However true it may be that alcohol does not often directly injure the kidney structure, as overindulgence in alcohol results in gastro-intestinal indigestion and disturbance of the functioning power of the liver, secondary irritation of the kidneys inevitably occurs. Consequently, a person with chronic nephritis should, as a rule, be forbidden to partake of alcohol in any form.

In deciding the amount and character of the protein diet sufficient for a patient with chronic nephritis, we must not underestimate the needs of the body. If, on an ordinary protein diet it is found that the blood retains nonprotein nitrogen, the protein must, for a time at least, be reduced. If, as recently shown by Mosenthal and Richards,[106] even the consumption of large amounts of protein does not increase the nitrogen output or cause retained nonprotein nitrogen in the blood, the extra nitrogen or protein must be stored somewhere in the body, and we deduce the fact that this added protein was necessary to the patient. In other words, we must be careful not to underfeed the patient while trying not to overfeed him. There is no doubt that the life of many a nephritic patient has been shortened by the absorption of too little protein and too much milk, just as many a diabetic patient has suffered excessively from the lack of carbohydrate food.

(To be continued)

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[106] Mosenthal, H. O., and Richards, A. E.: The Interpretation of a Positive Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, p. 329.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

FERRIC CACODYLATE.—Ferri Cacodylas.—Iron Cacodylate.—A ferric salt of cacodylic acid containing from 39.7 to 44.9 per cent. arsenic (As).

Actions and Uses.—Ferric cacodylate has the properties of iron salts and of arsenic. Its use has been proposed in conditions in which the effects of iron and the mild arsenic action of cacodylates is desired.

Dosage.—From 0.015 to 0.1 Gm. (¼ to 1½ grains).

Ampuls Iron Cacodylate-Mulford, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by H. K. Mulford Company, Philadelphia.

Ampoules Iron Cacodylate, Squibb, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by E. R. Squibb and Sons, New York City.

Ferric cacodylate occurs as a slight grayish-brown powder, having an apple-like odor. An aqueous solution of the salt is acid to litmus and to phenolphthalein. One part of ferric cacodylate is soluble in about 16 parts of cold water.

Ferric cacodylate loses about 5 per cent. of its weight when dried at 100 C.

With silver nitrate test solution, an aqueous solution of the salt (1:20) yields a white precipitate, soluble in nitric acid or ammonia water.

A mixture of 1 Cc. of an aqueous solution (1:100) of the salt with 10 Cc. of hypophosphorus acid develops the disgusting odor of cacodyl (caution on account of the extreme poisonous nature of the gas).

The ferric cacodylate used in the preparation of Ampuls Iron Cacodylate-Mulford, 0.03 Gm., complies to the following tests:

No turbidity is produced in 10 Cc. of an aqueous solution of the salt (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*). No yellow precipitate is produced in an aqueous solution of the salt (1:20) by ammonium molybdate test solution; nor is a yellow precipitate produced by sodium thiosulphate test solution. A white turbidity, but no yellow precipitate, is produced in 10 Cc. of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, on addition of 10 Cc. of hydrogen sulphide test solution. A portion of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, is not rendered turbid at once by barium chloride test solution.

Dissolve about 1 Gm. of ferric cacodylate, accurately weighed, in 200 Cc. distilled water, then titrate with normal sodium hydroxide volumetric solution, using 5 Cc. of phenolphthalein test solution as indicator. Each gram of ferric cacodylate requires not less than 5.3 Cc. nor more than 5.6 Cc. of normal sodium hydroxide volumetric solution; showing not less than 39.7 per cent. nor more than 41.9 per cent. arsenic (As). Theoretically ferric cacodylate, $Fe[(CH_3)_2.AsO.O]_3$, contains 48.1 per cent. arsenic.

The ferric cacodylate used in the preparation of Ampoules Iron Cacodylate, Squibbs, 0.03 Gm., complies to the following tests:

An aqueous solution of ferric cacodylate (1:20) does not at once become blue on the addition of potassium ferricyanide test solution (*ferrous iron*).

A few drops of an aqueous solution of ferric cacodylate (1:100) mixed with 2 Cc. of hypophosphorus acid in a stoppered test tube develops the odor of cacodyl within one hour.

Five Cc. portions of an aqueous solution of ferric cacodylate (1:20) does not become turbid on the addition of silver nitrate test solution, lead acetate test solution or cobalt nitrate test solution (*monomethylarsenate*).

No turbidity is produced in 5 Cc. of an aqueous solution of ferric cacodylate (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*).

An aqueous solution of ferric cacodylate (1:20), from which the iron has been removed by precipitation with ammonia water and filtering, acidulated with hydrochloric acid, yields on addition of an equal volume of hydrogen sulphide test solution not more than a slight coloration (*heavy metals and arsenites.*)

Disease Incidence in China.—Tuberculosis is the greatest disease plague in China, as it is one of the greatest in the west. Next to tuberculosis rank the venereal diseases. Closely following are the parasitic water-borne-diseases, as the typhoids, dysenteries and cholera. It is hard indeed to trace any acquired or inherited lack of susceptibility to these in the Chinese. They are undoubtedly as common if not more common than in the west. In fact, practically all of our western diseases flourish luxuriantly in China and usually claim a mortality higher than with us.—Dr. Alfred C. Reed, *Scientific Monthly,* January, 1917.

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SATURDAY, APRIL 7, 1917

THE IMMEDIATE EMERGENCY

If the President increases the army to the full strength, as provided by the Defense Act of 1916, there will be required 1,000 additional men for the Medical Corps of the Army — that is, for the regular service, not including the Reserve Corps. This is an Actual Pressing Need Whether There is War or Not. But there is also pressing need for more men in the Medical Reserve Corps. There are at present between 2,000 and 2,500 commissioned men in this corps. But of these, probably 20 per cent., for various reasons, would be found not available for active service when the actual emergency arose. If the recommendation in the President's message of last Monday, calling for an additional 500,000 men, is adopted, it means an immediate need for 3,500 additional medical officers.[1] These are facts that the medical profession of our country must bear in mind. Elsewhere we have stated that the medical profession will be prepared; may we emphasize that preparedness will mean sacrifice on the part of many medical men.

COLLOIDS, ACIDS AND KIDNEY SECRETION

Many of our readers are familiar with the view of Martin H. Fischer regarding the rôle of colloids in certain normal and pathologic phenomena, especially those concerned in the secretory activities of the kidneys. From a physicochemical point of view, the renal membrane which forms the central factor in the production of the urine is constituted of colloid substances in the nature of proteins. Starting with the analogy of the behavior of other colloids, such as fibrin and gelatin toward a variety of mediums — solutions of acids, bases, neutral salts and nonelectrolytes — Fischer has attempted to apply his observations to the problems of the behavior of secretory structures. As a confessedly rough model to illustrate some phases of urinary secretion, he has pictured a layer of organic colloid, like fibrin, through which solutions of various kinds may pass at constant pressure. Through such a colloid partition water or a "physiologic" salt solution passes at a certain rate. If the traversing solution is made acid, the colloid swells and lowers the amount of the artificial "secretion" to the point of stoppage. Salts can overcome the swelling effect of the acid on the colloid so that the passage of fluid is reestablished. It is also asserted that a more "acid" kidney will tend to retain more water than one in a less acid condition. Excretion will then be reduced because less water will be free for excretion.

Among the criticisms which have been directed against this explanation of altered kidney secretion, as it is observed in certain forms of nephritis, is the contention that in the body fluids the hydrogen ion concentration never reaches the degree that is essential for the colloid-altering effects just referred to in outline. The question here raised has lately been investigated by Reemelin and Isaacs,[1] who have also considered whether the varying reaction to which the kidney cells may be subjected as colloid structures affect the diffusion of the urea, sugar and other substances through the interposed membrane. They have perfused the blood vessels of excised kidneys with solutions of known composition in which the hydrogen ion concentrations were intentionally varied within limits comparable with those existing under actual conditions of life.

The results suggest that permeability of the renal structures may be altered by very small changes in the reaction of the fluids to which the physiologic membranes are exposed. Thus during the perfusion of saline solution containing urea, and within the physiologic limits of hydrogen ion concentration, the kidney colloids secrete more urea, the less acid the perfusing solution. The water secretion increases with the decrease in acidity. The amount of urea retained in the kidney colloids increases with the acidity. The urea excretory mechanism, while paralleling the water excretory mechanism in its operation, is quantitatively independent of it. These changes take place with very minute changes in the hydrogen ion concentration well within physiologic limits. The colloids of the body vary in their ability to hold dissolved substances under different degrees of hydrogen ion concentration. This suggests a basis for a mechanism of selective absorption and excretion.

Reemelin and Isaacs conclude that since the minute amounts of acid or alkali added to vary the hydrogen

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[1] Those desiring to offer their services should write to Surgeon-General Braisted, of the Navy, or to Surgeon-General Gorgas, of the Army, Washington, D. C., stating their age, when and where graduated in medicine, what practice they have been engaged in—what specialty, if any—and when they would be ready to respond to the call. This information should be accompanied with two letters of recommendation from physicians of good standing in the medical profession. This will save time.

[1] Reemelin, E. B., and Isaacs, R.: A Study of the Conditions Involved in the Accumulation of Dissolved Substances in the Blood, I The Relation of Acidity to the Retention of Sugar and of Urea by the Colloids of the Blood and the Kidney, Am. Jour. Physiol., 1916, 42, 163.

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Reemelin and Isaacs conclude that since the minute amounts of acid or alkali added to vary the hydrogen secretion which can dissolve or at least disintegrate the calcareous tissue with which it comes in contact. If the erosion of cartilage and bone is accompanied by phagocytosis of disintegrated tissue fragments, that operation must be carried on by other elements in the marrow cavity. The evidence all points to the ordinary reticulo-endothelial cells of the marrow reticulum. It is these which are most numerous in areas in which the resorption of bone and cartilage is most active. Shipley and Macklin accordingly conclude that these cells specialized to ingest small particles are active in the work of ingesting the débris of bone and cartilage absorption and clearing it away. How this is actually accomplished remains an interesting speculation.

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THE STUDY OF A DIURETIC

The therapeutic use of diuretic procedures involves two frequently quite dissociated underlying features. The urine serves to remove undesirable products from the body through the medium of secretion by the kidneys. Substances arising in metabolism, and foreign compounds, such as poisons, drugs or toxins of disease, are thus eliminated promptly, although it is not always duly realized that certain substances tend to leave the body by secretion into the bowel rather than in the urine. So far as diuresis increases the output of toxic or waste products, it may often serve a useful purpose. Sometimes water accumulates in the tissues, particularly if the circulation is impaired; diuresis affords the most satisfactory method of disposing of accumulations, provided the kidneys are capable of functioning normally.

Many clinicians think of diuretics solely from the standpoint of their efficiency in removing water from the body. It happens, however, that often the important problem is the removal of substances, other than water, for which the kidneys are no longer so readily permeable. Cases frequently arise in which there is considerable retention of excretory products without any edema and without any occasion for the elimination of water alone from the body. Furthermore, edema itself usually does comparatively little harm except in patients with marked cardiac insufficiency, when it forms a troublesome symptom and its removal brings relief.

These varied possible factors in relation to the efficiency or desirability of diuretic procedures indicate the need of careful studies to ascertain precisely what each type of alleged diuretic accomplishes in the varied conditions presented by healthy or impaired kidneys as well as in cardiorenal disease. Only by such investigations can the use of diuretics be put on a rational basis, and the indications or contraindications of special drugs established. The assertion has been made, for example, that diuretics are contraindicated in many cases of acute nephritis because they act to increase the work of the kidney and are irritants which may augment the pathologic process already existent in the kidney.

Christian[1] and his associates in the Medical Clinic of the Peter Bent Brigham Hospital have made extensive experimental studies on these questions. They conclude, particularly from observations on animals, that diuretics are ineffectual or often injurious in acute experimental nephritis. Christian has pointed out that frequently when the kidney is damaged, diuretics do not cause a diuresis; or, if a diuresis occurs, there may be evidence of marked renal fatigue subsequent to the diuresis. Skepticism has been expressed as to the efficacy of diuretic drugs in cases of nephritis in which the kidney is seriously damaged. Recently he has made a more exhaustive study[2] of a single widely used diuretic, theocin (theophyllin),[3] on a group of patients with acute nephritis or chronic nephritis or cardiorenal disease. The results are quite in accord with the observations on animals. The drug has no constant diuretic action. In persons with slight or no edema it has little or no therapeutic value, as diuresis is not constantly produced, elimination of nitrogenous substances quite often is slightly if at all increased, and renal function is frequently decreased after theocin has been given.

When theophyllin actually produces diuresis, it usually is only the output of water and sodium chlorid that is enhanced. These substances are not necessarily the most objectionable. As Christian says, there is more evidence that nitrogenous substances of some kind are toxic, but nitrogen elimination is much less constantly increased by theocin and quite often is actually decreased. So, from this point of view we might question the therapeutic efficiency of theocin in cases of nephritis with moderate amounts of edema. Perhaps we can asssume that a diuretic is used in this type of case to increase renal efficiency, to stimulate the kidney to increased work. Measured by water or sodium chlorid output, theocin might be said to accomplish this; measured by nitrogen elimination, function is little improved, often is made worse.

In cardiorenal cases with marked edema, theocin is of therapeutic value, because it produces, especially in conjunction with digitalis, an active diuresis with increased sodium chlorid elimination, which decreases edema, a troublesome feature in these cases. As there is evidence that, following an active diuresis, renal function is depressed, an intermittent usage of theocin seems preferable to a continuous usage in cardiorenal cases with edema.

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[1] Christian, H. A.: Am. Jour. Med. Sc., 1916, **151**, 625.

[2] Christian, H. A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.

[3] Theocin (N. N. R., 1916, p. 380) is a proprietary name applied to a synthetically produced theophyllin. Theophyllin is isomeric with theobromin, that is, its chemical elements and the percentage proportions are the same as those of theobromin. It differs from theobromin in that certain groups are arranged differently. Theobromin is closely related to caffein. While theobromin is dimethyl-xanthin, caffein is trimethylxanthin (N. N. R., 1916, p. 375).

Current Comment

MEDICAL PREPAREDNESS

When the president issued a call for volunteers at the time of the Spanish-American War, April, 1898, the medical services of the army and navy were about to hold the regular examinations to fill the ranks from losses due to the ordinary depletions in time of peace. There was no call for the mobilization of the medical profession as comes today. The fact that the life of the army is almost dependent on its medical staff was not appreciated then. There was much talk of the possibility of yellow fever attacking the troops, but no one realized the immense responsibility soon to fall on the medical corps, in connection not only with this disease, but also with the infectious diseases and sanitary problems inherent in the life of an army. There had been no campaign of preparedness, no enlistment of physicians, no establishment of and instruction of reserve corps. But the experience of that day had its effect. Over a year ago the American National Red Cross began to organize and to equip complete base hospital units. As we noted last week, twenty-nine of these base hospitals have been organized, twenty-two of which are completely ready for service and to go whenever and wherever ordered. Elsewhere in this issue[1] attention is called to the work of the Council of National Defense and the Committee of American Physicians on Medical Preparedness who have been enrolling and classifying the medical profession for service, and listing available stationary hospitals for the wounded. Even were this all that had been done in the way of medical preparedness, it would be far ahead of anything thought possible a few years ago. This preparedness applies both to the army and to the navy services. There still remains, however, much to be done. What has been accomplished must be regarded as but a beginning for what may eventuate. We must not make the mistake of underestimating what is before us. It is possible that our land forces may not be called on for actual fighting. But we do not know. It is possible that the number of men now called for may be all that will be required; on the other hand, 2,000,000 or 3,000,000 may be required. Preparedness means readiness for anything that may occur. The medical profession must and will be ready. Of this we are sure.

AN OPPORTUNITY FOR THE YOUNGER MAN

Our country is calling for volunteers. There is a need for medical men for both the Army and Navy. Without doubt the patriotism in our profession will prompt such a complete response that there will be no difficulty whatever in getting as many medical men as may be needed for active work. We are referring, here, not to the extra need on account of the declaration of war which, as we write, seems to be imminent, but to the fact, which we would emphasize, that the Medical departments of the Navy and of the Army have been and are urgently calling for men to enter these services permanently. Neither is full; the navy especially is shorthanded. During the last year or two we have called attention to the advantages offered in both of these services. Last week we printed an article by Major Noble setting forth the advantages of the Army Medical Corps as a career. Next week we hope to publish a similar article regarding the Medical Corps of the Navy, by one of the officers of that corps. Of course this call is limited to the younger men, those under 32. Within a few weeks over 3,000 young physicians will be graduated from the medical schools of our country. There are 2,641 senior students in the Class A schools. In addition, there are thousands of young men acting as interns in hospitals and young men in active practice who have not yet become "anchored." These are the men who, far from making a sacrifice in taking such positions, would be availing themselves of a great opportunity for a life-work. The Surgeon-General of the Navy has, with some success, directly appealed to the senior students of the leading medical colleges and, as will be noticed elsewhere, arrangements have been made by which the senior students of satisfactory standing who accept the call will be excused for the remainder of the session without forfeit. The country is calling to the young men just entering, or who have just entered, on the practice of medicine. May we again remind these younger men of medicine that there is offered not only an opportunity for development, but also an opening into a life work in which at this time advancement will be rapid for those who are capable and deserving.

THE ARMY SURGEON

It is safe to say that the majority of physicians who are considering offering their services to the government at this time have only a slight conception of the difference between military duties and civilian practice. The glamour of surgery has been cast over the duties of the physician in war time; but the work of the surgeon usually begins only after the duty of the soldier is done. The surgeon repairs the wounded man. The duties of the physician as a medical officer begin with the enlistment of the man before he is a soldier, take him from the recruiting office into the camp of mobilization, accompany him into the zone of war, select the site for the camp, keep the soldier fit for his duty as a fighting man, guard him from the devastation of infectious diseases, and prevent his incapacitation from exposure, from bad food and from the thousand and one other conditions of army life which are more dangerous than the bullet of the enemy. There is work for the epidemiologist, for the laboratory man, for the ophthalmologist, for the laryngologist, for the dentist and for the diagnostician, as well as for the internist and the surgeon. The surgeon by no means comes first. If any fact has become evident during the last three years it is that preventive medicine is the most important factor in keeping an army "fit," and, therefore, in the final determination as to which side shall be the victor.

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[1] See page 1060.

THE PUBLIC ASKING QUESTIONS

Do you know the extent of the educational work of the Propaganda department of THE JOURNAL as it relates to the general public? We ask the question because we are led to believe from comments made by visitors to the Association's building that few physicians realize the extent of the correspondence carried on in that department. It may not visualize the matter especially well to say that during the past four years the Propaganda department has received nearly 16,000 letters of inquiry — a very considerable portion of them from laymen — regarding "patent medicines" or some form of quackery. Over 95 per cent. of these letters were satisfactorily answered. This phase of the Propaganda department's activities has developed without any publicity save what naturally came as a result of service rendered. But the public is becoming more and more interested, and a recent incident shows what might be expected were the public more generally informed on this part of our work. The *Ladies' Home Journal* for April had a brief paragraph calling attention to the Propaganda department. It appeared in a department, edited by Dudley Harmon, which chronicles what the government and other organizations are doing in the public interest. The paragraph, entitled "The Medicine You are Taking," reads:

> "Uncle Sam knows a lot about 'patent medicines,' but curiously enough his own laws won't permit him to tell you much of what he knows. The laws under which he has prosecuted scores of manufacturers have fallen far short of entirely eliminating the bottled poisons sold as health-giving medicines, while millions are deluded daily by the false and extravagant claims made in advertisements of alleged 'cures' and 'treatments.'
>
> "But there are people in this country able and unafraid to tell you the whole truth about the 'patent-medicine' fakes and dangers. The Propaganda Department of the American Medical Association knows even more about them than the Government itself; and, what is more, it has as its sole purpose their exposure to the medical profession and to the public.
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> "To the limit of its capacity, this Propaganda Department, supported by the medical profession, is willing to help and to advise you. So, if you are in doubt as to the honesty or value of any particular preparation, or wish to help in the cause of educating the public, communicate with this organization at 535 North Dearborn Street, Chicago, Illinois. As a matter of courtesy, you might include a two-cent stamp with your letter when asking for assistance."

The day after this issue of the *Ladies' Home Journal* reached the public THE JOURNAL began to hear from it. While it was to be expected that some inquiries would result from this publicity, the extent of the public's interest in the subject of self-medication was underestimated. The Propaganda department has been inundated with inquiries that have poured in on it. The letters, naturally most of them from women, have come from all parts of the country — from Florida to Saskatchewan. As we write, they are averaging thirty a day. And the end, apparently, is not yet in sight.

The Assessors.—As the bookkeeper and accountant are the recorder and analyst of business transactions, so the registrars of births and deaths provide the means of assessing the results of public health administration.—Haven Emerson, M.D., "Preparedness for Health."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

New Officers.—The George Washington University Medical Society, composed of the alumni and faculty of the medical school, at a recent meeting elected Dr. W. Ashby Frankland, president; Dr. Coursen B. Conklin, vice president; Dr. Thomas Miller, secretary, and Dr. Edward G. Seibert, treasurer.

Revocation of License Sustained.—An official communication states that, March 16, the Court of Appeals of the District of Columbia sustained the action of the Board of Medical Supervisors in revoking the license of Dr. Thomas June Kemp. Dr. Kemp's license was revoked, May 29, 1916, on the ground of his having been convicted of a crime involving moral turpitude.

Duplex Report Cards for Reportable Diseases.—To facilitate the reporting of recoveries, each blank form to be used for the original report of a case now has attached to it a blank form on which to report the recovery. In instructions printed on the report card, the health officer suggests that when the physician fills in the report of the case he fill in also the attached recovery card, except date and signature, and detach it and hold to facilitate prompt report of the recovery at the proper time. The presence of the detached report card is expected to serve as a reminder to the physician of his duty to report the recovery, and if it be filled in while the report card is still before the physician, errors of name and address will be avoided. The physician is requested to leave the recovery card with the family of the patient if the physician discontinue attendance before recovery, as is frequently the case when the patient is suffering from measles, whooping cough and chickenpox.

ILLINOIS

Meet for Preparedness.—The Illinois Association of the Medical Reserve Corps is holding meetings every Tuesday evening to receive instruction from Major William N. Bispham, M. C., U. S. Army, with a view to better prepare themselves to serve the country in case they should be called into active service.

Norbury Dinner.—A dinner was given by philanthropists and social workers at Des Moines in honor of Dr. Frank P. Norbury, Jacksonville, March 13. Dr. Norbury delivered an address in which he outlined his work in mental hygiene. He also delivered a short address to the business men of Des Moines in which he explained how to establish a medical dispensary at every county seat in Iowa.

Infantile Paralysis Clinics.—Clinics for instruction in infantile paralysis are being held throughout the state by Dr. Clarence W. East, Evanston, representative of the state board of health. One clinic was held under the auspices of the Rock Island County Medical Association at Rock Island, another at Freeport under the auspices of the Stevenson County Medical Society, and a third at St. John's Hospital, Springfield.

Chicago

Fenger Memorial Grant.—The directors of the Fenger Memorial Association have made a grant of $400 to Pierce McKenzie for support of chemical and other work under the direction of Dr. E. R. LeCount. He will study the brain and other tissues from cases of heat stroke in order to determine, if possible, better than now known the cause of the high temperature in this condition.

Personal.—Dr. Frank C. Linden, president of the faculty and head of the department of medicine in Jenner Medical College, resigned from that institution, February 20, after having been connected with the college for sixteen years.——In a collision between automobiles on Lake Shore Drive, March 24, Dr. Alexander F. Stevenson sustained severe bruises.——Dr. Daniel A. K. Steele has been elected president of the consulting staff of the Municipal Tuberculosis Sanatorium and Dr. Merlin Z. Albro, secretary.

Hospital Changes Recommended.—In a report to the health commissioner of Chicago, Mrs. William R. Cubbins, director of the Citizens Committee, recommended the consolidation of the old and new Contagious Disease Hospitals under open management; the establishment of a laboratory for research work in the new institution; the appointment of a consulting staff of physicians; the construction of two additional four-story wings to the new hospital; the painting and redecorating of the old hospital and the establishment of cubicles in the old hospital for the observation of patients and the isolation of suspected cases.

INDIANA

Hospital Wrecked by Explosion.—One end of the Schneck Memorial Hospital, Seymour, was wrecked recently by the explosion of the steam sterilizer.

Personal.—Dr. John L. Freeland, formerly superintendent of the City Hospital, Indianapolis, has moved to Rocky Ford, Colo.——The home of Dr. William Walkinshaw, Stillwell, was almost entirely destroyed by fire, March 22.——Dr. David J. Cummings, Medora, sustained a cerebral hemorrhage at his home, March 17, and is in a serious condition.——Dr. Samuel S. Washburn, Lafayette, for forty-three years a practitioner of Tippecanoe County, has retired from active practice.

KANSAS

Field Hospital for Kansas.—Capt. Seth A. Hammel, M. C., Kan. N. G., Topeka, has been authorized by the adjutant general to organize a field hospital company in Topeka.

Public Health Organization.—The Kansas branch of the American Public Health Association was organized at the University of Kansas, Lawrence, March 16, and the following officers were elected: president, Prof. C. A. Haskins, Lawrence, sanitary engineer of the state board of health; vice president, S. P. Elder, Atchison, and secretary-treasurer, Miss Myrtle Greenfield, Lawrence. Among the subjects discussed at the meeting were, "Problems of the Feebleminded," "School Sanitation," "Tuberculosis Problems" and "Public Health Nursing."

MARYLAND

Naval Hospital Base.—The Navy Department is making inquiries in Baltimore hospitals as to their equipment, and there is a strong belief among physicians that Baltimore will be selected as a great hospital base for that branch of the service. The United States Army has already selected Baltimore as one of the great hospital bases of the country, Johns Hopkins having been chosen.

Quarantine to Be Taken Over.—The board of estimates of Baltimore received a letter, March 20, from Asst. Surg.-Gen. Arthur H. Glennan, U. S. P. H. S., Washington, D. C., stating that the government will be ready to take over the Baltimore Quarantine about July 1. The government agrees to pay the city $176,775 for the station and its equipment, including buildings, land and boats.

Life Extension.—The first of a series of public lectures was held under the auspices of the Medical and Chirurgical Faculty of Maryland in Osler Hall, Baltimore, April 3, the topic under discussion being "The Extension of Life." Dr. Lewellys F. Barker, Baltimore, spoke on "The Man of Fifty Years," and Dr. Eugene Lyman Fisk, New York, on "Living Long and Living Well."

University of Maryland Senior Class to Graduate.—To determine those eligible to be called into the naval reserve force as assistant surgeons, a canvass among medical students of the University of Maryland will be taken, while awaiting the action of the State Board of Examiners on the suggestion of Dr. William C. Braisted, surgeon-general of the United States Navy, that the senior class of the university be graduated within the next few weeks. Intense interest in the national defense idea is being displayed among the students, and military training, under the supervision of an army officer, is being kept up.

Preparedness.—Members of the medical and dental professions filled Osler Hall, March 30, when they assembled to discuss war service. There were also present women practitioners, who manifested as much interest as the men. Dr. Thomas S. Cullen, president of the Baltimore Medical Society, presided and introduced Dr. William H. Welch, Baltimore, whose subject was "The Medical Profession and Preparedness." He gave an account of his visit to England and France, where he visited the various hospitals and laboratories. Major Robert E. Noble, M. C., U. S. Army, Washington, D. C., spoke of the doctors that the government needs and how it will use them. Speeches were also made by Lieutenant Wilson of the Naval Recruiting Office, and by Dr. Gordon Wilson, who told of what the doctors of Baltimore could and should do.

Personal.—Dr. William Rush Dunton, Jr., of the Sheppard and Enoch Pratt Hospital, Towson, has recently returned from a visit to Clifton Springs, N. Y., where he assisted in the incorporation of the National Society for the Promotion of Occupational Therapy, which has as its object the consolidation of workers among the blind, crippled, nervous, physically and mentally weak, who use work in varying degrees as a means of recovery.——Dr. Thomas B. Horton, Curtis Bay, who has been seriously ill with rheumatism for five weeks, is able to attend to his office practice. It is expected that within the next few days he will be able to leave his home.——Dr. Charles W. Rauschenbach of the University of Maryland has received his commission as lieutenant, Medical Corps, U. S. Army, and will report for duty in the near future.——Dr. John S. Green, Gittings, who has been seriously ill, is reported to be improving.

Fund to Equip Base Hospital.—At a meeting of business men of Baltimore at the Merchants' Club, Baltimore, March 30, the statement was made by the chairman of the committee that the sum of $30,000, the amount required for a base hospital, was in sight. Of this sum, $21,000 has already been subscribed. Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, who represented the Baltimore surgeons and physicians willing "to do their bit," was authorized to proceed with the organization and equipment of a base hospital. This hospital will be taken over and maintained by the War Department in case of hostilities. It will be one of thirty similar institutions organized in different cities, and will follow the army. Dr. Smith has been requested by the federal government to proceed as speedily as possible with the completion of the Red Cross base hospital. Four hundred surgeons, physicians, nurses, electricians, plumbers and carpenters are in the hospital organization. Among the members on the medical staff are Drs. William S. Baer, John M. T. Finney, Theodore C. Janeway, Walter A. Baetjer, Thomas R. Boggs, John Staige Davis and William A. Fisher, Jr., all of Baltimore.

NEW YORK

Public Health Association to Move.—The Rochester Public Health Association has sold its home at 95 Troup Street, and for the time being will rent accommodations for the continuance of the preventive, tuberculosis and dispensary work of the organization.

Disinfection of Water.—In order to equip the troops for the disinfection of drinking water, the state department of health is making a study of an outfit which will provide calcium hypochlorite in exactly the necessary quantities to disinfect 50 gallons of water, and after disinfection will remove the disagreeable taste due to the excess of chlorin.

Mobile Laboratory Unit.—Dr. Hermann M. Biggs announces that the division of laboratories for research is assembling, and preparations are being made for a mobile laboratory unit to establish diagnostic service at any point needed in connection with the mobilization of troops. The laboratory has also put up a large supply of bacterial vaccines against typhoid, paratyphoid and dysentery, and also large stocks of smallpox vaccine, diphtheria and tetanus antitoxin, pneumonia, meningitis and dysentery serums.

Scarlet Fever.—Scarlet fever is reported to be epidemic in Rochester, where more than 300 cases have been reported. There are already forty-two patients at the Municipal Hospital. There appear to be two forms of epidemic scarlet fever in Rochester, a severe outbreak which occurs every twenty to twenty-five years, and a milder form occurring in from four-year to six-year cycles.——March 19, there had been reported 130 cases of scarlet fever in Syracuse. Fifty-two patients were in the city hospital. The cases are chiefly mild in character.

Recommend Changes in Antinarcotic Law.—The committee on the drug evil of the committee of magistrates met recently to discuss needed changes in the Whitney law dealing with the use and distribution of narcotics. The committee suggested two amendments to the law, one compelling physicians to make a third copy of all prescriptions for narcotics, to be sent to the health department, and a second requiring that the board of health be informed as to the exact amount of narcotics kept in stock by all physicians. It was decided that these changes would make it easier for authorities to control the drug evil.

Health Officers as Army Examiners.—Health Commissioner Hermann M. Biggs has offered the services of all the health officers in the state, about 1,000 in number, to the military authorities, the idea being to use them in making preliminary physical examination of recruits in case the country becomes involved in war. Dr. Biggs' offer has been accepted by the adjutant general of the state. The proposed plan is that health officers give prospective recruits a preliminary examination and that only those who can fulfil the physical requirements of the army will be passed on to the medical officers for final examination.

New York City

Medical Officers' Reserve Corps Recruiting.—Under the direction of Dr. Henry C. Coe, President of the Medical Officers' Reserve Corps, examination of applicants for the corps is being conducted at the New York Academy of Medicine, every afternoon excepting Saturdays, from 3 to 5 o'clock. This forms a part of a campaign to add men to the corps.

Baby Week.—The Babies' Welfare Association of New York City, in announcing that the first week in May has been designated as Baby Week throughout the country, urges all organizations to undertake local celebrations in the districts in which they work, and advises that in view of the present national situation no attempt be made to form a centrally organized committee like those of previous years.

Personal.—Dr. Frank H. Carber of the Mayo Clinic, Rochester, Minn., has joined the diagnostic staff of the Life Extension Institute.——Dr. Leon T. LeWald has been appointed professor of roentgenology at the University and Bellevue Hospital Medical College.——Dr. Charles Fisher, Brooklyn, sustained serious injuries of the arm in a collision between his automobile and another car.

Societies Endorse Antidrug Bill.—The Medical Society of the State of New York, the Medical Society of the County of New York and the Medical Economic League have endorsed the antinarcotic legislation drafted by the joint legislative committee which is investigating the drug evil. The bill provides for free drug supply to addicts, and the registration of addicts so that they may be advised by the state, and of a thorough check on the distribution of narcotic drugs.

Brooklyn Physicians' Demand Autonomy.—At the meeting of the Kings County Medical Society in Brooklyn, March 20, it was decided to begin a campaign to secure an independent health department for Brooklyn, and a resolution was adopted appointing a special committee of fifteen to be known as the charter revision committee, whose sole function is to bring about legislation at Albany by a campaign among the civic bodies of Brooklyn and the people generally, to the end that absolute borough autonomy in health matters of Brooklyn be obtained.

Military Training at Cornell.—In addition to military training offered by the Department of Military Science and Tactics of Cornell University, at Ithaca, the Medical Department of New York has commenced a course of lectures of "Military Medicine, Sanitation and Surgery," which are being given by Major Philip W. Huntington, M. C., U. S. Army. This course is available not only to the senior class in the medical college. but to all members of the Medical Reserve Corps in and about New York, as well as to physicians and nurses of the various Red Cross units.

Mackay Hospital Unit.—Clarence H. Mackay and his mother, Mrs. John W. Mackay, have made a joint gift of a completely equipped base hospital unit of 500 beds to the United States government through the American Red Cross. The organization of the unit has been accomplished by Roosevelt Hospital. Col. Jefferson K. Kean, M. C., U. S. Army, assisted in the organization. The staff of the unit, which will be called Red Cross Base Hospital, No. 18, will be directed by Dr. Charles A. H. Peck. Under the direction of Dr. Charles N. Dowd an alternate staff is being organized.

American Red Cross Work in New York.—The New York Chapter of the American Red Cross announces that in case war is declared it will have ready a complete hospital equipment for an army of 300,000 men. A fund of $215,000 for the equipment of seven military base hospitals organized in New York is completed. It is also stated that the Atlantic Division of the American Red Cross, of which New York is the center, has increased its membership in this part of the country by 150,000 since the break in diplomatic relations with Germany. The membership of this division now exceeds 310,000, more than one half of the entire Red Cross enrolment of the country.

OHIO

Health Insurance Commission Appointed.—The bill creating a commission to study the entire question of compulsory health insurance has passed both houses. It is expected that Governor Cox will sign it.

The Conklin Memorial.—The Montgomery County Medical Society has erected in the medical room of the Dayton Public Library a memorial tablet in honor of the services of Dr. William Judkins Conklin, formerly president of the library board.

Personal.—Dr. Chester C. Kirk, for thirteen years a member of the staff of the Toledo State Hospital, has resigned to accept the position of superintendent of the State Hospital for Nervous and Mental Diseases, Little Rock, Ark.——Dr. Charles E. Sawyer, Marion, has been reappointed a member of the state medical board.——Dr. Walter A. Haldy, Cleveland, has returned after three months' Red Cross service in Germany.

PENNSYLVANIA

Mellon Lecture.—May 18, Prof. Otto Folin, Ph.D., of Harvard University will deliver the third Mellon lecture of the Society for Biological Research of the University of Pittsburgh Medical School. The subject lecture will be "Recent Biologic Investigations on Blood and Urine; Their Bearing on Clinical and Experimental Medicine."

Medical War Survey.—At a meeting of physicians of Pittsburgh, in the academy of medicine rooms, March 13, steps were taken to classify the medical, surgical and hospital possibilities of Pittsburgh and Allegheny counties for war service. Dr. John J. Buchanan was elected president, Dr. Sidney A. Chalfant, secretary, and Dr. George C. Johnston, treasurer of the organization.

Personal.—Dr. Edward Ryan, Scranton, has returned after two years spent in medical relief work in Serbia.——Dr. John M. Gelwix, Chambersburg, has been appointed surgeon to the Columbia Valley Railroad.——Dr. Luba R. Goldsmith, Pittsburgh, was recently elected secretary to the Milk Commission of the Allegheny County Medical Society.——Dr. Gregg A. Dillinger, who has been ill in the West Pennsylvania Hospital as the result of a hemorrhage of the lungs, is reported to be improving rapidly.——Dr. D. Webster B. Kupp has located in Reading after more than thirty years of practice in Gibralter.——Dr. William N. Pringle, Johnstown, has returned after a trip to Central and South America.

Addition to Hospital.—April 3 was the "Public Inspection Day" of the New Nurses' Home Building, George W. Elkins' gift to the Abington Memorial Hospital, which has just been completed. The new structure represents an outlay of $150,000. It is similar in architecture to the rest of the hospital buildings, and in addition to giving model quarters to the nurses and hospital attachés, it permits, because of the large number of private rooms, a wider scope of work and activity for the hospital, the only institution in the Old York Road section. Mr. Elkins, the donor of the building, is also the founder and chief benefactor of the (Abington) Memorial Hospital, of which he assumed the cost of construction, and heavily endowed as a memorial to his wife, Stella McIntire Elkins.

Philadelphia

Doctors Plan Ambulance Corps.—Physicians in this city, members of the Physicians' Motor Club, have completed plans to form an ambulance squadron. One thousand machines will be enrolled, and each machine will be equipped with a rack holding two stretchers to be carried under the car during emergency periods. The plan has been approved by Mayor Smith, and permission has been granted the club to drill on the Belmont plateau.

War Training for Doctors.—At a meeting, March 29, of the medical council, composed of the faculty of the Medical School of the University of Pennsylvania, resolutions were passed urging that three months' service in a military training camp be made a requisite part of courses in medicine in all first class colleges to secure a diploma, and a mass meeting to boost preparedness and discuss military training was held by the students in the gymnasium, March 30.

Personal.—Dr. David N. Husik has been appointed laryngologist and otologist to the Philadelphia General Hospital in the place of Dr. Charles P. Grayson, resigned.——Dr. Frank C. Hammond has been elected president of the Samaritan Hospital Society, and Dr. Daniel J. Donnelly, secretary and treasurer of the same organization.——Dr. Judson Daland has been elected emeritus professor of clinical medicine in the Philadelphia Polyclinic and College for Graduates in Medicine.

Society Activities.—At the meeting of the College of Physicians of Philadelphia, April 4, a portrait of Dr. James Cornelius Wilson was presented to the college on behalf of the donor, Mrs J. C. Wilson, by Dr. Francis W. Sinkler. The scientific discussion of the evening was devoted to "Gallbladder Disease."——The first of the series of Nathan Lewis Hatfield lectures will be delivered at the College of Physicians of Philadelphia, Twenty-Second Street above Chestnut, April 9, at 8:30 p. m., by Dr. Archibald B. McCallum, Toronto. His subject will be "Ancient Factors in the Relation Between the Blood Plasma and the Kidneys."——The Medical Club of Philadelphia will give a reception at the Bellevue Stratford, April 20, at 9 p. m., in honor of Dr. Chevalier Jackson, recently made professor of laryngology in Jefferson Medical College.

SOUTH CAROLINA

Personal.—Dr. Isaac J. Campbell has been elected mayor of Clover.——Dr. Hugh R. Black has been elected president of the board of health of Spartanburg, succeeding Dr. Julian H. Allen, deceased, and Dr. Oliver W. Leonard has been elected vice president.

Allen Memorial Association.—At a meeting of friends and admirers of the late Dr. Julian Howard Allen, at Spartanburg, recently, the Allen Memorial Association was organized, the purpose of which is to plan and execute some fitting memorial to Dr. Allen.

Antituberculosis Association Organized.—At a meeting held in Columbia, March 13, the South Carolina Antituberculosis Association was formally organized, and the following officers were elected: president, Prof. Reed Smith; honorable vice presidents, Drs. Robert Wilson, Jr., Charleston, and James A. Hayne, Columbia; vice presidents, Dr. Morgan P. Moorer, Georgetown, and Mrs. James Cosgrove, Charleston; secretary, Miss Martha A. Bonham, Anderson, and treasurer, J. R. Roseberry, Columbia.

CANADA

Doctors Heavily Fined.—Several physicians in London, Ont., have been fined $200 and costs on account of having prescribed liquor in contravention of the Ontario temperance act. One physician had written 718 orders for liquor since the act came in force, September 16.

Typhoid Fever Prevalent.—There are said to be about a dozen cases of typhoid fever in the Welland County Hospital and many more cases in the towns of Welland and Port Colborne. A general warning has been issued by the health officials advising residents of the county to boil all drinking water.

Hospital News.—The Brant House, a summer hotel at Burlington, Ont., near Hamilton, has been turned into a hospital for returned soldiers. It will accommodate about 300, and will make an ideal home with its sunny verandas and grounds facing the shore of Lake Ontario.——The recently completed immigration sheds at Quebec City are to be turned into a discharge depot under the Canadian Hospitals Commission. When the St. Lawrence navigation opens, ships can then come alongside the building and discharge passengers readily. It has accommodation for 1,000 beds.

Personal.—Dr. John S. Douglas, Dunnville, Ont., a recent graduate, has jointed the Canadian Army Medical Corps, and is now on his way overseas to assist in one of the military hospitals in France.——Col. F. W. Marlow, A. D. M. S., Toronto Military District, having handed in his resignation some weeks ago, has been advised that it has been accepted. His successor was not yet been appointed.——Col. John Taylor Fotheringham, C. M. G., Toronto, is returning to Canada, having been appointed director of invalid services.——Lieut.-Col. Graham Chambers, Ontario Military Hospital, Orpington, England, is said to have suffered from a "nervous breakdown," and is now in a hospital in London.——Dr. Judson Daland, Philadelphia, read a paper before the Academy of Medicine, Toronto, April 3, on "Focal Infection as a Cause of Constitutional Diseases."——Dr. Joseph C. Beck, Chicago, will address a special meeting of the Oph-Oto-Laryngology Section of the Academy of Medicine, Toronto, April 23.——Dr. Alec Nicol Thomson, Brooklyn Hospital Dispensary, New York, led off the discussion on "The Dispensary Control of Venereal Diseases," Section of State Medicine, Academy of Medicine, Toronto, April 2.

GENERAL

Iowa and Illinois Physicians to Meet.—The regular spring meeting of the Iowa and Illinois Central District Medical Association will be held in Rock Island, Ill., April 12, under the presidency of Dr. David S. Fairchild, Clinton, Iowa. Dr. Arthur Dean Bevan, Chicago, will discuss "Some Interesting Problems in Abdominal Surgery."

Conferences on Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis will hold its annual meeting in Cincinnati, May 9 to 11.——The Mississippi Valley Tuberculosis Conference will be held in the Twin Cities, October 8 to 20, the session of the first two days being held in Minneapolis and the last day in St. Paul.

The Carrel Method.—It is reported that a hospital for the instruction of surgeons in the treatment of infected wounds by the method worked out by Drs. Alexis Carrel and H. D. Dakin at the Military Hospital, Compeigne, France, will be established on the grounds of the Rockefeller Institute for Medical Research, New York. The Rockefeller Foundation has appropriated $200,000, which, it is expected, will be under the personal supervision of Dr. Carrel. The hospital will be organized as a military unit.

Correction.—In the article on "Enterostomy" by J. W. Long, The Journal, March 17, 1917, p. 833, it is stated:

> "Occasionally, after the distended bowel is emptied, its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it as in a Witzel gastrostomy. This, however, is not often advisable, especially if the omentum cannot be utilized."

This should have read:

> "Occasionally, after the distended bowel is emptied its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it similar to a Witzel gastrostomy. This, however, is not often advisable especially if the omentum can be made to surround the fistula. In some cases the omentum cannot be utilized."

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital and Pennsylvania Hospital, Philadelphia, each $5,000, by the will of Mrs. Phoebe N. Ashbridge.

St. Francis Home for Convalescents, Barby, Pa., $10,000, by the will of Michael Murphy.

New Jersey Orthopedic Hospital, Orange, N. J., a donation of $10,000 for the building fund, from Mr. J. Ogden Armour, Chicago.

Associated Jewish Hospitals of Chicago, $10,000; Michael Reese Hospital, Chicago, $5,000, and Chicago-Winfield Tuberculosis Sanatorium, $2,000, by the will of Julius W. Loewenthal.

Northwestern Antituberculosis League, $1,000, for permanent improvements at the Grand View Sanatorium, Oil City, Pa., by the will of Mrs. Joseph Seep, Titusville.

Committee of American Physicians for Medical Preparedness.—The Committee for Medical Preparedness, in a circular letter, announces that it is organizing subordinate committees in each county to cooperate with the national and state committees in gaining needed information regarding civilian medical resources and in securing applicants for the Army Medical Corps, the Medical Officers' Reserve Corps, the Naval Medical Corps, the Coast Defense Reserve Corps of the Navy and the National Guard, and that an inventory of hospitals and other medical institutions is being taken. The committee has also appointed a committee for the standardization of medical and surgical supplies and equipment, composed of representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and the medical profession.

Infectious Diseases.—As set forth in *Public Health Reports*, March 23, 1917, infectious diseases were reported as follows: Connecticut, February 1 to March 17, cerebrospinal meningitis, 61 cases; Minnesota, week ending March 17, cerebrospinal meningitis, 19 cases, with 4 deaths; since Dec. 26, 1916, a total of 52 cases, with 20 deaths; Massachusetts during February, cerebrospinal meningitis, 9 cases; West Virginia, 6 cases; Wisconsin, 5 cases. During February, leprosy was reported as follows: New Orleans Parish, La., 3 cases; Jersey City, N. J., 1 case; week ending March 3, New Orleans, 1 case; at Paauilo, Hawaii, March 17, plague, 1 fatal case. At Detroit from January 6 to March 17, there were reported 1,740 cases of scarlet fever; in Chicago between February 3 and March 17, there were 3,248 cases. During two weeks ending March 17 in Connecticut, 58 cases of smallpox were reported.

The American Review of Tuberculosis.—The first issue of a new monthly to be known by this title has just appeared. It is to be the journal of the National Association for the Study and Prevention of Tuberculosis. Its editor-in-chief is Dr. Edward R. Baldwin, Saranac Lake, N. Y., and the managing editor is Dr. Allen K. Krause of Baltimore. In view of the ever growing interest in tuberculosis work, the National Association considers that the present time is an excellent one to offer all workers in tuberculosis a medium in which they can present their work. The first number contains articles by Walter L. Rathbun on "The Classification of Pulmonary Tuberculosis"; by A. H. Garvin, H. W. Lyall and M. Marita on "Chronic Nontuberculous Lung Infection"; by S. A. Petroff on "Serological Studies in Tuberculosis," and also a department of medical notes, abstracts and reviews.

To Increase Naval Medical Reserve Force.—In view of the present state of international affairs, an enlargement of the Medical Corps of the United States Navy has become necessary. The surgeon-general of the navy, therefore, has planned to fill these vacancies by enrolling in the Naval Reserve Force such senior students who volunteer for that service as may have received an average of 85 per cent. during their four year medical course. Deans of medical colleges have been requested to report such students as volunteers for this service, when a special medical officer will be sent to the college to examine them. To students who pass this examination the college officials have been requested immediately to grant certificates of graduation or statements showing that they have reasonable prospects of graduation. Students will then be assigned immediately to active service, for instruction and training, and will subsequently undergo another examination for appointment as assistant surgeons in the United States Navy. State licensing boards have been requested to approve of this advance graduation on the ground of national expediency, since it is believed the naval instruction and training will fully cover the deficiency in institutional instruction. At the request of the secretary of the navy, the Council on Medical Education has approved of this plan, and notified all Class A medical schools to that effect.

WAR NOTES

Hospital Unit for Palestine.—The Hadassah, the women's Zionistic organization, has raised a fund of $30,000 for the equipment of a medical unit of ten physicians and ten nurses to be sent to Palestine to combat typhus fever and other diseases now prevalent there.

Gifts of Ambulances.—Robert W. Goelet, New York, has made a gift of $250,000 to the Harjes-Norton Ambulance Corps, Paris.——The ambulance committee of the Evanston Red Cross Society has already raised $1,200 of the $1,600 required to purchase and equip an ambulance for the American Ambulance Corps in France, to be known as the Evanston Ambulance.

Hospital Ship Sunk.—It was announced, March 27, that the British hospital ship *Asturias* had been sunk without warning by a German submarine with a loss of thirty-one persons killed, twelve missing and thirty-nine injured. The *Asturias* is said to have been steaming with all navigation lights and with all the proper distinguishing Red Cross signs visibly illuminated.

Relief Work in Belgium.—The Commission for Relief in Belgium has been informed that another relief steamer has passed safely through the German blockade and arrived in Rotterdam. The work, which has heretofore been carried on by American delegates of the commission in Belgium, will for the time being be taken over by the Dutch authorities relief committees.

Philadelphia Physicians' Fund for Feeding Belgian Children.—It is estimated that of about 2,500,000 Belgian children there are at least 1,000,000 who are suffering from hunger. A committee has been organized in Philadelphia of which Drs. William W. Keen, Alonzo E. Taylor and George Woodward are the medical members, which proposes that for the six months from April 1, Philadelphia shall furnish one good noon-day meal every day to 100,000 of the children. The cost of this will be $1 per month per child, and the expenses of administration are provided for, so that the entire amount subscribed will go to the children.

FOREIGN

Infantile Paralysis in South America.—On account of the prevalence of infantile paralysis in South America, Chile has established special inspection stations at Arica, Puntas Arenas and in the Andean passes.

Nurses in Guam.—According to the *Survey*, March 24, 1917, seven native girls of Guam will this year receive diplomas from the United States Navy Medical Department as trained nurses. The girls are graduates of a mission school. The nursing course included ordinary nursing, obstetrics, sanitation, personal hygiene and dietetics. After graduation these nurses go into the country districts, and return later to the hospital for review and supervision. An increased staff of American surgeons and nurses to train these classes, in addition to the hospital work, has been provided.

PARIS LETTER

Paris, March 1, 1917.

Personal

Jules Dejerine, clinical professor of diseases of the nervous system at the Faculty of Medicine of Paris, and physician to the Salpêtrière, died at the age of 67. He was born in Geneva, of French parentage, Aug. 3, 1849. After serving an internship in the Paris hospitals, he presented his doctorate thesis in 1879. It was entitled "Pathology of the Nervous System in Ascending Paralysis," indicating clearly a predilection for neurology. From that time on he devoted himself almost entirely to the study of the diseases of the nervous system and their pathologic anatomy. He was made chief of clinic in 1879, attending physician to the hospitals in 1882, and associate professor in 1886. In this capacity Dejerine had charge of an auxiliary course in pathologic anatomy as early as 1889. In 1893 he assisted Péter in his clinic at the Necker hospital. Afterward, in 1901, he was appointed to the chair of the history of medicine and surgery, which he abandoned soon afterward for the chair of internal pathology. Next he was appointed clinician in diseases of the nervous system, a position made vacant by the death of Raymond, the successor of Charcot.

Dejerine was a frequent contributor to the literature, and all of his writings represent progress in our knowledge of lesions of the peripheral and central nervous systems. It was he who advocated the examination of the spinal cord by means of serial sections, a marked and notable advancement in the study of the pathology of the spinal cord. In 1879, the Anatomical Society awarded him the Godard prize for his research on the lesions of the nervous system in diphtheritic paralysis, and in 1886 the Academy of Sciences awarded him the Montyon prize for work done in collaboration with Landouzy on the pathology of progressive muscular dystrophy, a disease which, for a long time, was known by the eponymic designation "Dejerine-Landouzy disease." Evidences of Dejerine's activity are found in the history of nearly all of the nervous diseases, notably aphasia, tabes, Friedreich's disease, myelitis, syringomyelia, neuritis, compression paralysis, Thomsen's disease, the thalamic syndrome, and inflammations of nerve roots. In collaboration with Mme. Dejerine (née Augusta Klumpke, a native of San Francisco, the first woman invested with the honorary title of intern of the hospitals of Paris), he prepared a really remarkable anatomy of the nervous centers, and collaborating with Dr. A. Thomas, he wrote a treatise on diseases of the spinal cord. He was also the author of the chapter on the semeiology of the nervous system in Bouchard's textbook on general pathology. Dejerine was a member of the Society of Biology, and in 1908 he was elected a member of the Academy of Medicine.

News has reached us of the death, at Lyons, of Jules Courmont, professor of hygiene at the Faculty of Medicine and Pharmacy of Lyons, and vice president of the Superior Council of Health of France. While making his professional rounds in the Hôtel-Dieu, he was suddenly stricken by cerebral hemorrhage, and in spite of the best of medical attention, he succumbed on the following morning. Courmont was chiefly known because of his work in tuberculosis. He had been a corresponding member of the National Academy of Medicine since 1909.

The War

RESUPPLYING THE MILITARY HOSPITALS

In conformity with vigorous regulations, every military hospital must hereafter secure its own supplies. The method of securing supplies appropriate to peace times becomes difficult of execution in time of war because of the greater number of sanitary formations. The exigencies of the moment necessitate more and more the creation of an agency for supply and distribution. On the basis of these orders, conveying the ideas and propositions of the ministers of finance and of war, supply depots will be created in the various regions of the territory. These depots are placed in charge of specialists recruited from among officers of administration and, so far as possible, from among the manufacturers and business men. To make it possible for these new organizations to defray their own operating expenses, it is proposed to issue a decree to increase the appropriations which may be given to the managers of these establishments.

AMBULANCES AND MILITARY HOSPITALS DONATED BY FRENCH VILLAGES FOR THE RUSSIAN FRONT

A national subscription has been opened among the cities and municipalities of France for the purpose of endowing the Russian armies with hospital corps, model hospitals and automobile ambulances, *strictly* in accord with military hygiene, medicine and surgery, as it has been developed by the war. These units will be organized under the auspices of the undersecretary of state of the military health service, and will be sent soon to Volhynia, to Bukovina, to the Caucasus and to Persia. Each unit will be accompanied by a competent surgeon and a chosen personnel so that our allies may take care of their wounded according to the best methods. The city of Paris, through its municipal council, has voted the sum of 50,000 francs ($10,000) for this purpose, and the little community of Seignosse in the Landes, with only 625 inhabitants, has appropriated 500 francs ($100).

MEDALS FOR ENGLISH WOMEN PHYSICIANS AND NURSES

A new decoration, known as the medal of the epidemics (médailles des épidémies), was recently conferred on forty English female physicians and nurses of auxiliary hospital No. 301 (abbaye de Royaumont). Miss Ivens, a graduate in medicine and chief of the hospital mentioned, received a gold medal. Eight gold plated silver medals were awarded to the Misses Ruth Nicholson, Augusta Berry, Agnes Savill, Marion Wilson, Elizabeth Courtauld, Winefred Ross, Cicely Hamilton and Kate London, all doctors of medicine, and fourteen silver and seventeen bronze medals were awarded to the nurses of the hospitals.

CONFERENCE FOR THE STUDY AND REEDUCATION OF WAR CRIPPLES

The meeting of the allied conference, organized for the study of the question of mutilation in all its aspects (reeducation, protection, disposition, etc.), which was to have taken place in Paris, March 6, 1917, has been postponed to May 8. All those desiring to take part in this conference are requested to write to the Belgian legation, rue de Berri, 20, Paris.

LONDON LETTER

London, March 12, 1917.

A New Standard for the Loaf

Under order for the manufacture of flour and bread (The Journal, Feb. 10, 1917, p. 474) the average compulsory extraction of flour was fixed at 76 per cent. *if the miller* added a further 5 per cent. of flour ground from rice, barley, *maize or* oats, or 81 per cent. if there was no addition of this admixture. An optional addition of a further 5 per cent. of flour ground from grain other than wheat was also permitted. A new order makes the extraction of 81 per cent. of flour from the wheat invariable, and admixture with some other substance is compulsory to the extent of an additional 5 per cent. The materials allowed to be mixed are rice, barley, maize, maize semolina, oats, rye or beans. Further admixture to the extent of an additional 10 per cent. is permitted. The order will mean a further and valuable diminution of the consumption of wheat, with a corresponding release of tonnage. It will be seen that if the miller chooses to exercise his option to the fullest extent, the total percentage of flour obtained may be as high as 96, as compared with 86 under the earlier order. Standard bread as now baked has been found to be both pleasant to eat and nutritious.

Administration of the Insurance Acts

An important report of a commission of investigation appointed by the Faculty of Insurance to consider the operation, position and prospects of national insurance has been issued. The chairman of the commission was Mr. John Hodge, now minister of labor, and the other members included one woman, one employer, six representatives of friendly societies, and the president of the Poor Law Union Association for England and Wales. The conclusions of the commission are thus summarized: (*a*) The medical benefit, the sickness benefit and the maternity benefit have undeniably been a great advantage to the community. The commission looks forward to their useful development in many ways. (*b*) The drug service is fairly good and represents, on the whole, reasonably good value for the money spent on it. Treatment as distinct from drugs should receive greater attention, and the system of medical aid societies and institutional treatment generally might with advantage be encouraged. (*c*) The tuberculosis scheme cannot be regarded as a success; in all probability much better results would be obtained were the existing system of overlapping control brought to an end and the whole responsibility vested in one public health authority. (*d*) It is impossible to expect fully satisfactory results from any of the health services unless and until housing conditions, both urban and rural, are improved. The report admits that so long as the war lasts no great changes in the relations between physicians, the public and the state are either desirable or practicable. The medical services under the act "represent a considerable advance on the conditions which obtained prior to the act." Of the defects *in the various* services, some are regarded as mainly due to administration, while some "appear to be inseparable from any form of medical service involving an enormous working-class population, many of whom spend their lives in an environment which, from a medical point of view, cannot possibly be described as favorable." It is suggested that a *system* under which a second medical opinion could be obtained when required would be an improvement, and the opinion is expressed that, though the services rendered are improving, "the standard of medical treatment is none too high, and unless a pretty rapid improvement is forthcoming within, say, the next five years, the practicability of establishing a state medical service will call for serious consideration." The view that the act presents a temptation to malingering is not accepted as commonly true. It is suggested that the act proceeds on the *footing that* the prescription of drugs is the foundation of medical attendance, whereas the future may impose an *increasing* reliance on treatment as opposed to drugs and "a fuller development of the hospital as a focal point in health administration"; but it is curious to find that in this connection the work of certain of the medical aid societies *is especially* praised. What is regarded as the worst fault of the drug service is that financial pressure and the great burden *of clerical work* placed on physicians not infrequently leads to the prescription of a comparatively cheap drug instead of a rather more suitable and more costly article. The results of the act as regards sanatorium benefit are looked on as disappointing. The problem was largely miscalculated, and the results fall far short of the expectations raised. Better access to early cases and isolation of late and infectious cases are regarded as essential. Most of the evidence was in favor of handing over the whole treatment of tuberculosis to the public health authorities. Unless housing conditions are substantially improved, which means a large expenditure, "it is impossible to expect really satisfactory results from any national health insurance scheme." The government has admitted that on about $150,000,000 of the funds of approved societies invested without reference to the views of their own office bearers there has been a depreciation of about $22,500,000. The amount of deficiency in the working of societies cannot be ascertained at present, but *it is believed to be* serious, and it is hinted that there has been improper concealment of the facts. The position *must, it is believed, be still further* aggravated when the effects of disablement benefit are more fully manifest. It is held that Parliament definitely made itself responsible for the act, and that insured persons are therefore entitled to look to Parliament for a remedy. *The war threatens to cause* a burden on approved societies, in respect to disabled soldiers and sailors, which their resources are not fitted to carry. The commission holds that "the state should provide all the money required to pay for the war; no portion of its *cost should* be thrown on insured persons as such through their approved societies." The state into which the finances of the act have fallen is attributed "very largely to the supposed requirement of the positions of political parties," and the hope is expressed that any suggested amendments will be looked on "as matter lying without the sphere of partisan conflict."

Marriages

Daniel Murrah Molloy, M.D., Managua, Nicaragua, C. A., to Miss Gladys Pierce Barker of Providence, R. I., March 15.

Lawrence Glen Dunlap, M.D., Bismarck, N. D., to Miss Clemence Ruby Lucken of Lidgerwood, N. D., March 4.

Frederick Valentine Gammage, M.D., Savannah, Ohio, to Miss Leah Iris Coulson of Ashland, Ohio, February 24.

Davison Hughes Ray, M.D., Bingham Canyon, Utah, to Miss Elizabeth Eastin Kinkaid of Louisville, March 1.

Howard William Girvin, M.D., Warrensville, Ohio, to Miss Elsie B. Jones of Baltimore, in Cleveland, March 22.

Balduin Hermann Lucke, M.D., Philadelphia, to Marion Hague Rea, M.D., of Boston, March 2.

Allen Greenwood, M.D., Wellesley, Mass., to Miss Hope H. Whipple of Pawtucket, R. I., March 8.

Deaths

Charles Shreve Braddock, Jr., M.D., Haddonfield, N. J.; Jefferson Medical College, 1896; aged 53; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New Jersey; for several years a surgeon of the New Jersey Naval Reserve, and during the Spanish-American War a lieutenant on the *U. S. S. Resolute;* from 1902 to 1910 assistant to Dr. H. Adamson, a medical missionary of the Baptist Board and chief of the Royal Hospital, Bangkok; afterward chief health officer of the Siamese government, who for his work in plague and cholera received the decoration of the Crown of Siam from the king of Siam; after his return to America medical examiner for the Interborough Rapid Transit Company of New York; died at his home, March 23, from cerebral hemorrhage.

Harry Mead, M.D., Buffalo; University of Buffalo, N. Y., 1891; aged 48; a Fellow of the American Medical Association; associate in medicine in his alma mater; a member of the medical staff of the Buffalo General Hospital; assistant surgeon of the Sixty-Fifth New York Infantry, U. S. V., during the war with Spain; died at his home, March 18, from heart disease. At a special meeting of the administrative board of the Medical Department of the University of Buffalo, a committee was appointed to draw up resolutions on the death of Dr. Mead, and it was further decided that the faculty attend the funeral in a body and that as a mark of respect to Dr. Mead, the medical department be closed on the afternoon of the funeral.

Reuben Fletcher Monette, M.D., Greensboro, Ala.; New York University, New York City, 1892; aged 46; assistant physician in the New York City Asylum for the Insane and the Manhattan State Hospital, Ward's Island, N. Y., from 1893 to 1902; a member of the Medical Association of the State of Alabama and American Medico-Psychological Association; while on a fishing trip in the Warrior Swamp near Greensboro, March 15, died suddenly from acute gastritis.

George E. McDonald, M.D., Schenectady, N. Y.; New York University, New York, 1862; aged 75; a member of the Medical Society of the State of New York; assistant surgeon and surgeon of the Twelfth New York Volunteer Cavalry during the Civil War; one of the founders of the Physicians' Hospital which later become Mercy Hospital, Schenectady; a member of the staff of Ellis Hospital, Schenectady; died at his home, March 8.

E. R. Max Magnus von Schmittholz, M.D., San Francisco; Jefferson Medical College, 1888; aged 63; a Fellow of the American Medical Association; who had conferred on him the order of the Red Eagles by Kaiser Wilhelm in 1913 for his services to his fatherland in western America; a leader of German musical development in San Francisco; died in the Lane Hospital, San Francisco, March 19, from myocarditis.

John George Johnson, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1857; aged 83; formerly a Fellow of the American Medical Association; surgeon of volunteers during the Civil War; at one time editor of the *New York Medical Journal;* a member of the staff of Bellevue and Long Island College hospitals; died at his home, March 25, from senile debility.

Charles J. Keim, M.D., Catasauqua, Pa.; University of Pennsylvania, Philadelphia, 1875; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of Pennsylvania; a veteran of the Civil War; for two terms burgess of Catasauqua and for several years a school director and member of the town council; died at his home, March 18.

Arthur Ellsworth Merrill, M.D., Somerville, Mass.; Long Island College Hospital, Brooklyn, 1886; aged 54; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for many years medical director of the Somerville Y. M. C. A.; died suddenly at that place, March 17, from heart disease, while playing basket ball.

Andrew Robertson Gordon, M.D., Toronto, Ont.; University of Toronto, 1890; aged 53; associate professor of clinical medicine in his alma mater; lieutenant-colonel, C. A. M. C.; with overseas service with No. 4, Toronto University General Hospital, but invalided home in 1915; died at his home in Toronto, Dec. 16, 1916, from carcinoma of the stomach.

Thomas Bernard Shea, M.D., Boston; Harvard Medical School, 1887; aged 54; a Fellow of the American Medical Association; assistant fort physician, medical inspector, chief medical inspector and later deputy commissioner of health of Boston; for thirty years connected with the health department of that city; died at his home, March 25.

Frank Webster Evans, M.D., Bellingham, Wash.; Dartmouth Medical School, Hanover, N. H., 1898; aged 48; formerly of Coos, N. H.; a member of the New Hampshire Medical Society and formerly secretary of the Coos County Medical Society, and a member of the board of health of Coos; died at his home, March 19, from erysipelas.

George Garrett Gordon, M.D., Detroit; University of Michigan, Ann Arbor, 1878; aged 64; professor of anatomy in the Michigan College of Medicine and Surgery; formerly a Fellow of the American Medical Association; died at his home, March 12, from the effects of injuries sustained in an automobile accident a year before.

John A. DeArmand, M.D., Davenport, Iowa; University of Pennsylvania, Philadelphia, 1876; aged 65; formerly a member of the Iowa State Medical Association; for several years county physician of Scott County; alderman for four years and for two terms state senator; died at his home, March 23, from arteriosclerosis.

Joseph Reed Osman, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1884; Medical-Chirurgical College of Philadelphia, 1884; aged 70; a Fellow of the American Medical Association; a veteran of the Civil War; assistant in bacteriology in his alma mater; died at his home, March 17.

Jonas Adelson, M.D., New York; College of Physicians and Surgeons in the City of New York, 1901; aged 40; formerly a Fellow of the American Medical Association; attending physician to New York University and Bellevue Hospital Dispensary; died at his home in Lynbrook, L. I., March 20.

Alexander Ferguson Koontz, M.D., Irvington, N. Y.; Bellevue Hospital Medical College, 1883; a specialist on diseases of the eye, nose and throat; since 1896 assistant surgeon to Manhattan Eye, Ear and Throat Hospital; died in the Rockefeller Institute Hospital, March 5, from pneumonia.

John Henry Clay Cuffman, M.D., Gurdon, Ark.; University of Nashville, Tenn., 1889; aged 53; a Fellow of the American Medical Association; local surgeon of the Missouri Pacific System; president of the Clark County Bank; died in St. Luke's Hospital, Little Rock, Ark., March 18.

Alexander M. Cowie, M.D., Kingman, Ariz.; McGill University, Montreal, 1887; aged 52; a Fellow of the American Medical Association; for several years surgeon for the Occidental and Oriental Steampship Company; died at his home, March 18, from appendicitis.

James Cash Coleman, M.D., Goshen, N. Y.; Albany (N. Y.) Medical College, 1863; aged 73; assessor of taxes since 1895; for eighteen years a member of the board of education; a veteran of the Civil War; died at his home, February 26, from cerebral hemorrhage.

James Aloysius McMorrow, M.D., Syracuse, N. Y.; Bellevue Hospital Medical College, 1898; aged 40; formerly a member of the Medical Society of the State of New York; died in the French Hospital, New York, March 12, five days after an operation for appendicitis.

John T. Allen, M.D., St. Louis; Missouri Medical College, St. Louis, 1895; also a pharmacist; died in the St. Louis City Hospital, February 13, from injuries received in jumping from a four-story window of a hotel while delirious and suffering from lobar pneumonia.

George Washington Boskowitz, M.D., New York; Eclectic Medical College of the City of New York, 1876; aged 60; dean and professor of surgery and therapeutics in his alma mater since 1884; editor of the *Eclectic Review* since 1890; died in Sarasota, Fla., March 15.

Herbert A. Sherwood, M.D., Warren, Ohio; Homeopathic Hospital College, Cleveland, 1876; aged 62; formerly a Fellow of the American Medical Association and president of the staff of the Warren City Hospital; died in the Cuyahoga Sanitarium, March 10.

Gordon T. Simonson, M.D., Crisfield, Md.; University of Maryland, Baltimore, 1896; aged 44; a member of the Medical and Chirurgical Faculty of Maryland; who fractured his leg at the ankle about a month before; died at his home, March 10, from heart disease.

Charley Graves Coyle, M.D., Spring Hill, La.; Marion-Sims College of Medicine, St. Louis, 1901; aged 41; a member of the Louisiana State Medical Association; also a druggist; was instantly killed by the overturning of his automobile near Sarepta, La., March 15.

Claudius Barrard Chapin, M.D., Benton Harbor, Mich.; University of Michigan, Ann Arbor, 1897; aged 44; formerly a member of the Michigan State Medical Society, and once president of the Berrien County Medical Society; died in Chicago, March 9.

Moses O. Moore, M.D., Spiro, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1907; aged 38; formerly a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile near Poteau, Okla., March 6.

Richard Henry Endicott, M.D., Oakdale, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 71; formerly a member of the Medical Society of the State of California; died at his home, March 15, from carcinoma of the stomach.

J. Q. Stovall, M.D., Grayson, Ky.; Louisville (Ky.) Medical College, 1885; aged 79; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, February 6, from cirrhosis of the liver.

Charles D. Goodrich, M.D., Elkhart, Ind.; University of Michigan, Ann Arbor, 1879; aged 60; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home, March 14, from pneumonia.

George Mifflin Dallas Peltz, M.D., Center Square, N. J.; University of Pennsylvania; Philadelphia, 1868; aged 71; for many years a practitioner of Philadelphia and treasurer of the Philadelphia Medico-Legal Society; died at his home, March 11.

Soloman E. Hampton, M.D., Milton, Ky.; Miami Medical College, Cincinnati, 1866; aged 79; formerly a member of the Kentucky State Medical Association; a veteran of the Civil War; died at his home in Hunters Bottom, near Milton, from nephritis.

Frank D. Schwerdtfeger, M.D., Royal, Iowa; Northwestern University Medical School, Chicago, 1911; aged 28; formerly a member of the Iowa State Medical Society; died in a hospital in Chicago, about March 9, after a surgical operation.

David Moury, M.D., Bellefontaine, Ohio, and Atlanta, Ga.; Vanderbilt University, Nashville, Tenn., 1884; aged 79; a Fellow of the American Medical Association; died at his winter home in East Lake, Atlanta, March 10, from pneumonia.

Frederick Rice, M.D., Sunbury, Pa.; University of Pennsylvania, Philadelphia, 1900; aged 40; a member of the Medical Society of the State of Pennsylvania; was run down and killed by a street car in Sunbury, March 10.

Thomas B. Duckett, M.D., Fountain Inn, S. C.; Atlanta (Ga.) Medical College, 1886; aged 54; formerly a member of the South Carolina Medical Association; died at his home, February 26, from cerebral hemorrhage.

Emmet Newton Palmer, M.D., Brooklyn, Mich.; University of Michigan, Ann Arbor, 1869; aged 76; a Fellow of the American Medical Association; died at his home, February 28, from nephritis.

Anne Taylor Wass, M.D., Los Angeles; Northwestern University Women's Medical School, Chicago, 1882; aged 66; died in the Women's Hospital, Chicago, January 18, from malignant disease.

Francis M. Abbett, M.D., Indianapolis; Eclectic Medical Institute, Cincinnati, 1870; aged 76; died in the Methodist Hospital, Indianapolis, Dec. 27, 1916, from uremia.

George Wever, M.D., Anacortes, Wash.; Detroit Medical College, 1878; aged 78; a veteran of the Civil War; died at his home, February 8, from cerebral hemorrhage.

Alexander J. Stark, M.D., Sarcoxie, Mo.; Missouri Medical College, St. Louis, 1887; aged 53; died at his home, March 8, from cerebral hemorrhage.

Walter H. Curtis, M.D., Rochester, N. Y.; Hahnemann Medical College, Philadelphia, 1880; aged 56; died at his home, February 24.

Frederick E. Davis, M.D., Birmingham, Ala.; Birmingham (Ala.) Medical College, 1899; died in an infirmary in Birmingham, March 6.

William Lee Roy Leister, M.D., Oakland City, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 67; died at his home, March 4.

Albert Walter Sully, M.D., New York; Bellevue Hospital Medical College, 1891; aged 49; died at his home, March 14.

D. W. Moorehead, Oklahoma City (license, Oklahoma, 1908); died at his home, about March 9.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CORPORA LUTEA (SOLUBLE EXTRACT), PARKE, DAVIS & CO.

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up for consideration "Corpora Lutea (Soluble Extract)," marketed by Parke, Davis & Co. in the form of ampules and proposed for hypodermic administration. The report which appears below was submitted to the Council by a committee, and was adopted by the Council. Corpora Lutea (Soluble Extract) was declared inadmissible to New and Nonofficial Remedies, and publication of the report authorized.

W. A. Puckner, Secretary.

Corpora Lutea (Soluble Extract) has not been submitted by the manufacturer. The information of the referee is based, therefore, on the claims made in the trade package, and on the statements in the price list. These show that the product is essentially secret and claims made for the actions and uses of the preparation do not make clear the essentially experimental status of the article, and are therefore misleading.

Conflict with Rule 1.—No definite statement of composition appears beyond the indefinite claim that it is an aqueous solution of "soluble Corpora Lutea Extract," each ampule corresponding to 0.2 Gm. of desiccated gland. How these soluble products are obtained, whether they represent *all* the water-soluble principles, or whether some have been eliminated, are questions that are not answered. Yet such information is essential to intelligent and scientific use, for, as there is no method of standardization, the method of preparation is the only mark of identity. For instance, we do not know at this time whether proteins have anything to do with the supposed value of corpora lutea. It is, therefore, essential to know whether or not the proteins have been eliminated.

Conflict with Rule 6.—The circular in the package advises the hypodermic use of this extract, not only in functional amenorrhea and the ordinary reflex consequences of physiologic or artificial menopause, but also in:

> "'neurasthenic' symptoms during menstrual life";
> "sterility, not due to pyogenic infection or mechanical obstruction";
> "repeated abortions, not due to disease or mechanical factors";
> "hyperemesis in the early months of pregnancy."

These are not stated merely as conditions in which various enthusiasts have tried corpus luteum, but as conditions "for which it will be found serviceable."

It is not necessary to inform the medical profession that this statement is calculated to raise expectations which cannot possibly be fulfilled. Even the manufacturers seem to realize this; at least they speak somewhat indefinitely of "suitable cases," "good judgment," "real indications," etc. But they proceed to nullify this warning—if it was intended as a warning—by their illustrations of unsuitable cases, for instance, "amenorrhea due to extreme anemia, dysmenorrhea due to cervical stenosis," etc. Finally, they sum up the case:

> "Therefore, additional emphasis on the necessity for the proper selection of cases is essential in order that this useful preparation may not be unjustly discredited."

How these cases of sterility, abortions, etc., are to be selected is not revealed. In other words, the restriction is no more than a convenient device by which every improvement is to be attributed to the medicine, and every failure to the physician.

The referee recommends that Corpora Lutea (Soluble Extract), Parke, Davis & Co., be held ineligible to N. N. R., because it is a secret preparation advertised under extravagant claims.

[Editorial Comment.—Was it not in Weir Mitchell's "Adventures of François" that the itinerant promised to pull teeth without any pain, *if the patient would hold absolutely still?* And, *mirabile dictu,* the ones who suffered were those who had not held absolutely still!]

Correspondence

"The 'Open Door' in China"

To the Editor.—I have just read the editorial "The 'Open Door' in China." The bulletin on which it is based was commented on at length in the official organ of the Rochester Chamber of Commerce this week. I think every physician and everybody else who can see the cruelty and economic loss caused by the "patent medicine" business ought to begin to write letters to the secretary of the department which is responsible for putting out that bulletin. I do not remember who the secretary of commerce is; but enough letters of protest ought to be sent to him to make him take notice.

JOHN M. SWAN, M.D., Rochester, N. Y.

[EDITORIAL NOTE.—The secretary of the Department of Commerce is William C. Redfield. The chief of the Bureau of Foreign and Domestic Commerce, through which "Special Consular Report No. 76" on "Proprietary Medicine and Ointment Trade in China" was sent out, is E. E. Pratt.]

Syphilis as an Etiologic Factor in Mongolian Idiocy

To the Editor:—I have been much interested in the article by Drs. McClelland and Ruh on this subject (THE JOURNAL, March 10, 1917, p. 777). I have been studying it for ten years and have discussed it in "Feeble-Mindedness, Its Causes and Consequences." I have not been able to find any conclusive proof that syphilis in the parents causes feeblemindedness of any type, to say nothing of the Mongolian. I was consequently much surprised at Dr. Stevens' article, which is answered by the article in question.

The results of Drs. McClelland and Ruh are thoroughly consistent with other studies of Wassermann tests of the feebleminded. We have made two series of examinations in this institution, in one of which five antigens were used and both blood and spinal fluid employed. In neither of these was the percentage of positives noticeably high. Many other institutions have made similar tests of their patients, and while the percentage of positives varies, it is nowhere surprisingly large. The following from the Columbus Institution, Ohio, is fairly typical:

> Among those tested were twenty-eight Mongolians, of whom five, or 17.8 per cent., gave positive reactions. In the Keller Institution in Denmark, tests were made a few years ago and gave, for the total group of feebleminded, only 2 per cent. positive Wassermann reactions and for the Mongolians, none.

Our experience in the matter of parental history also confirms that of the authors. We have the confidence of the parents of our children to a very high degree. The fact that we are making scientific studies of the problem, and are working to help their child, elicits the parents' interest and breaks down all barriers. Moreover, it is a characteristic of Mongolian imbecility that the type comes from the best families; the parents are intelligent and highly respected people. While unfortunately this does not necessarily preclude the presence of syphilis, it does make it highly probable that they would know it if they had ever been infected, even innocently. We have not found a single case in which the parents admitted syphilis or their physical condition would indicate it.

We can also corroborate the authors' second statement in regard to the histories of brothers and sisters of Mongolians. From other institutions for the feebleminded I have collected the histories of 332 cases of Mongolian imbecility. In not one instance was there history of another Mongolian child in the family, and in only two cases were there histories of other mental defectives of *any type*. As the authors claim, this seems a highly improbable result, if syphilis were the cause of Mongolian imbecility.

To these difficulties in the way of regarding syphilis as the cause of Mongolian imbecility, I think may be properly added the further one that there is *no correlation* between the incidence of mongolism and syphilis. Mongolian imbecility is, relatively speaking, very rare; syphilis is far from rare. If syphilis is the cause of Mongolian imbecility, are we not compelled to conclude that the latter would be vastly more prevalent than it is?

HENRY H. GODDARD, Vineland, N. J.
Director, Department of Research, the Training School.

Current Views Regarding the Tonsils and Their Surgical Removal

To the Editor:—As a practitioner of western Kansas and inferentially included in the list of those endorsing his methods, I cannot let the statements made in THE JOURNAL, March 24, 1917, by Dr. Higginbotham of Hutchinson go unchallenged. We are willing to concede that pyorrhea alveolaris is probably the direct cause of cataract, scabies, hemorrhoids, etc., as Dr. Higginbotham valiantly maintains. We will also grant that focal infections of tonsils, teeth, etc., may produce warts, moles and clubfeet. But when Dr. Higginbotham publishes through THE JOURNAL (and the space should be more valuable) that we enucleate tonsils for diphtheria in lieu of antitoxin and other accepted treatment, we must in justice to the profession of this district rise up and swat the libel. No argument is necessary to prove that diphtheria is rarely limited to the tonsil. His other contentions are equally untenable.

J. A. DILLON, M.D., D.D.S., Larned, Kan.

[COMMENT.—Dr. Higginbotham's letter was printed to show how extreme one may become in one's enthusiasm in advocating a pet theory or measure. Furthermore, overenthusiasm in advocating a cause sometimes produces a healthy reaction. —ED.]

Yellow Petrolatum

To the Editor:—With regard to my letter on yellow petrolatum in intestinal stasis (THE JOURNAL, Jan. 27, 1917, p. 304), I have received inquiries as to the meaning of "yellow petrolatum." The only brand with which I have had experience is "vaseline" sold by the Chesebrough Company. There may be others as good or better, but I have not found them in Omaha. As previously indicated, I think the yellow petrolatum is more efficient than the white.

H. GIFFORD, M.D., Omaha.

[COMMENT.—The petrolatum of the United States Pharmacopeia is also known as petroleum ointment, petroleum jelly and vaseline. Vaseline is the Chesebrough Company's trade name for this product. Petrolatum album of the United States Pharmacopeia is the decolorized product. There is no "yellow petrolatum," although the term is sometimes applied to the official "Petrolatum" to distinguish it from the official "Petrolatum Album."—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"CYANOCUPROL"—"AMBRINE"

To the Editor:—1. Kindly state in your next week's issue, if possible, whether "Cyanocuprol" is being used in any sanatoriums or hospitals of this country as a curative agent for tuberculosis, and what the results of scientific investigations of this drug are.

2. What is "Ambrine?" Over $500 has been raised in Dallas for the purchase of this preparation.

EMIL ARONSON, M.D., Dallas, Texas.

ANSWER.—1. Studies of the effects of "Cyanocuprol" on tuberculous processes, carried out by Japanese investigators, were discussed in THE JOURNAL, Aug. 5, 1916, p. 443. At that time attention was called to the fact that the preparation "Cyanocuprol" used by the Japanese investigators is stated to be a copper cyanid preparation, the exact composition of which was being kept secret. The use of "Cyanocuprol," even should its identity become known, is decidedly in the experimental stage.

2. "Ambrine" is a French secret preparation that has been on the market for many years. It has recently come into prominence through sensational articles in the lay press, both in this country and abroad. For all practical purposes it is solid paraffin to which some material has been added to make it adhesive and more plastic. A similar preparation may be made by melting together paraffin, 96 per cent., and beeswax, 4 per cent. For use it is heated until liquid and applied to burns and open wounds. It forms a relatively impervious dressing. See article by Dr. Torald Sollmann, this issue, page 1037.

LITERATURE ON DOUBLE URETERS

To the Editor:—Please give some references to literature on "double ureters" and "double pelves" of the kidney.

Bundy Allen, M.D., Iowa City, Iowa.

Answer.—

Stevens, A. R.: Pathologic Lesions of the Kidney Associated with Double Ureters, The Journal, Dec. 28, 1912, p. 2298.

Hartmann, J.: Supernumerary Ureters, *Ztsch. f. Urol.*, July, 1913; abstr., The Journal, July 19, 1913, p. 233.

Motzfeldt, K.: Deformity of Urinary Apparatus, *Norsk Mag. f. Lægevidensk.*, July, 1914; abstr., The Journal, Aug. 22, 1914, p. 714.

Worrall, R.: Case of Bilateral Duplication of Ureters Complicating Operation for Cancer of Cervix Uteri, *Jour. Obst. and Gynec. Brit. Emp.*, September, 1914.

Lockyer, C.: Double Ureter Simulating Parovarian Cyst in Right Broad Ligament, *Jour. Obst. and Gynec. Brit. Emp.*, October-December, 1914.

Cecil, A. B.: Case of Complete Duplication of Renal Pelvis and Ureter, *California Jour. Med.*, January, 1915.

Simon and Mertz: Complete Unilateral Duplication of Ureter, The Journal, May 27, 1916, p. 1686.

Peacock: Multiple Ureters with Hydronephrosis, The Journal, April 18, 1916, p. 1088.

QUARANTINE FOR MEASLES AND RUBELLA

To the Editor:—1. What is the generally accepted idea regarding the quarantine period for measles?

2. Is it considered safe to remove restrictions after respiratory symptoms have entirely subsided, paying no attention to desquamation?

3. What is considered a safe period of quarantine for German measles?

Please omit my name in answering. E. V. V.

Answer.—1. The period of quarantine for measles is generally given as four weeks.

2. In New York City at present quarantine is terminated five days after the appearance of the rash, provided all catarrhal symptoms have ceased and fever and rash have disappeared, although not the pigmentation. Meara suggests that the child should be kept in bed until the rash has quite disappeared, and then, in the absence of fever and complications, may be allowed up, and in another week or ten days the quarantine may be lifted. Rosenau ("Preventive Medicine and Hygiene") states that the quarantine should not be raised until all the manifestations of the disease have disappeared. The period of quarantine for infectious diseases is a matter dependent largely on local laws and ordinances, and varies of course in different places.

3. Most physicians believe that isolation is not necessary in rubella.

THYROID EXTRACT IN UTERINE HEMORRHAGE

To the Editor:—I am preparing a paper on the use of thyroid extract in the treatment of uterine hemorrhages, and would appreciate a list of references to articles on this subject which have appeared in The Journal. I have my journals for some time, but by having the exact number of the journals in which these articles have appeared, I could find the articles more easily, which would greatly facilitate the preparation of said paper.

O. C. Klass, M.D., Muskogee, Okla.

Answer.—

Selirt, E.: Thyroid Origin of Hemorrhagic Uterine Disease, *München. med. Wchnschr.*, May 6, 1913; abstr., The Journal, June 14, 1913, p. 1930; Thyroid Treatment of Uterine Hemorrhage, *München. med. Wchnschr.*, Feb. 10, 1914; The Journal, March 21, 1914, p. 974.

Salzman, S.: Hyperthyroidism Factor in Certain Types of Uterine Hemorrhage, *Am. Jour. Obst.*, November, 1916, p. 812; abstr., The Journal, Dec. 2, 1916, p. 1696.

HOLMES ON PUERPERAL SEPSIS

To the Editor:—Please give me the date of the first publication of Oliver Wendell Holmes' essay on "Puerperal Sepsis."

Kenneth E. Kellogg, M.D., New Britain, Conn.

Answer.—"The Contagiousness of Puerperal Fever" by Oliver Wendell Holmes was first published in the *New England Quarterly Journal of Medicine and Surgery*, 1842.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

Arkansas, Eclec.: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Arkansas, Homeopathic: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.

Illinois: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

Nevada: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fé, April 9. Sec., W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 2-3, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1915)	85
Indiana University	(1908)	80.3
Maryland Medical College	(1905)	75.8
Jefferson Medical College	(1916)	82.4
FAILED		
California Eclectic Medical College	(1912)	*

* No grade given.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Palatka, Dec. 5-6, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 26, of whom 18 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Med. Coll. of Alabama	(1904)	85
Atlanta Medical College	(1915)	84
State University of Iowa	(1896)	66 *
Tulane University of Louisiana	(1914) 89; (1915)	78
College of Physicians and Surgeons, Baltimore	(1906)	80
University of Maryland	(1916)	84
Dartmouth Medical School	(1879)	88
University and Bellevue Hospital Medical College	(1912)	88
University of the City of New York	(1891)	81
Meharry Medical College	(1916)	75, 75, 86
Memphis Hospital Medical College	(1887)	56 *
Vanderbilt University	(1916)	77
University of Havana	(1915)	75
National University, Athens	(1913)	80
University of Naples	(1898)	75
FAILED		
Atlanta College of Physicians and Surgeons	(1912)	72
Southern College of Medicine and Surgery	(1914)	45
University Medical College of Kansas City	(1901)	67
Meharry Medical College	(1914) 43; (1916)	66
University of the South	(1907)	64
Vanderbilt University	(1892)	48
University College of Medicine	(1907)	68

* Credit allowed for years of practice.

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 11-13, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 12, of whom 5 passed and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Loyola University	(1916)	80.4, 86
University of Louisville	(1910) 84; (1916)	77, 80

FAILED

Bennett Medical College	(1913)	65
Loyola University	(1916)	71 *
Kentucky School of Medicine	(1907)†	44
Louisville Medical College	(1912)	60
Louisville National Medical College	(1916)	70 *
Meharry Medical College	(1915) 67; (1916)	70 *

* Fell below 60 per cent. in certain branches.
† Graduation not verified.

New Hampshire December Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the oral and written examination held at Concord, Dec. 18-19, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed and 3 osteopaths failed. One candidate was granted a reregistration license by examination and 4 candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Maryland	(1916)	88
Boston University	(1915)	85
Harvard University	(1916)	84
Tufts Medical College	(1916)	77, 90

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Boston University	(1895)	Mass.
Harvard University	(1915)	Mass.
Tufts Medical College	(1915)	Mass.
University of Vermont	(1887)	Vermont

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, Dec. 5-7, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 25, of whom 23 passed and 2 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado	(1913)	84.9
Chicago College of Medicine and Surgery	(1915)	77
Rush Medical College	(1901)	78.7
University of Illinois	(1916)	82.3
University of Louisville	(1915)	79.4
Johns Hopkins University	(1912)	84.6
University of Maryland	(1916)	78.9, 81.2, 82.2
Harvard University	(1916)	80.1
University of Michigan Medical School	(1916)	80.2
Albany Medical College	(1916)	82
Eclectic Medical College	(1916)	75.3, 81.1
Western Reserve University	(1916)	78.8, 79.3, 86.7, 88
Jefferson Medical College of Philadelphia	(1914) 86.1; (1916)	83
Woman's Medical College of Pennsylvania	(1915)	86
Medical College of Virginia	(1916)	86.3
National University, Athens	(1909)	75
FAILED		
Meharry Medical College	(1905)	60.2
University of Genoa, Italy	(1912)	68.7

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 12-15, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 24, of whom 17 passed, including 3 nongraduates and 1 osteopath, and 7 failed, including 2 osteopaths. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Georgia	(1913)	76
National Medical College	(1906)	80*
University of Maryland	(1916)	87
Medical College of Virginia	(1915) 77, 80; (1916)	75, 79, 79, 82, 91.
University of Virginia	(1910) 95; (1916)	94, 94
FAILED		
North Carolina Medical College	(1915)	67
Meharry Medical College	(1915)	74
University of West Tennessee	(1916)	73
Medical College of Virginia	(1912) 71; (1916)	66

*Graduation not verified.

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1909)	Dist. Colum.
Atlanta College of Physicians and Surgeons	(1912)	Georgia
University of Louisville	(1910)	Kentucky
Tulane University of Louisiana	(1900)	Louisiana
Baltimore Medical College	(1913)	Alabama
University of Maryland	(1888) North Carolina; (1914)	W. Virginia
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1909)	Penna.
Woman's Medical College of Pennsylvania	(1914)	Penna.
Meharry Medical College	(1904)	Illinois
Medical College of Virginia	(1913)	N. Carolina

Book Notices

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. With chapters upon Sewage and Garbage, by Goerge C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene. Second Edition. Cloth. Price, $6. Pp. 1286, with 172 illustrations. New York: D. Appleton & Co., 1916.

That the advance of preventive medicine and hygiene has been exceptionally rapid during the past few years is shown in this new edition of Rosenau's book. The additions include, as stated in the preface, prevalence of venereal diseases, chancroid, the Schick reaction, the Bang method of suppressing bovine tuberculosis, organization of a local tuberculosis campaign, tuberculosis sanatoriums and dispensaries, emetin, insecticidal agents, especially for lice and fleas, standardization of bacterial vaccines, sensitized vaccines, roaches, feeblemindedness, the Wassermann test, relation between host and parasite, essential requirements for a safe milk supply, butter, desiccated and condensed milk, streptococci of sore throat, sodium fluorid, hydrofluoric acid, cancer heredity, tests for heated milk, echinococcus disease, carbon dioxid in alveolar air, sanitary significance of odors, ocular hygiene, hydrogen sulphid, methane, accidents in sewers and their prevention, reinspiration of expired air, air washing with reference to ventilation, goiter, sanitation of swimming pools, and military hygiene.

It is interesting to note that in the chapter on venereal diseases Dr. Rosenau favors attempts at registration of these diseases, although he is rather pessimistic as to the success of the registration. He is hopeful, however, that as time goes on a gradual improvement may be expected, although he is rather hopeless as to the possibility of ever eradicating venereal diseases. Incidentally he says (page 55):

"Syphilis is an infection caused by the *Treponema pallidum* (formerly known as the *Spirochaeta pallida*)." From this point on, "treponema" is laid aside and "spirochaeta" is the only term used. The part on tetanus contains no reference to foreign literature later than 1910, although much has appeared in foreign literature since then, and especially during the last two years, owing to the experience with this disease in the European war.

The second chapter, which begins with typhoid fever, is particularly excellent. It contains numerous charts and tables showing how this disease has gradually yielded to control. It is interesting to note here in the discussion on typhoid bacilluria, page 89, that the author advises hexamethylenamin in 10 grain doses as an aid in disinfecting the urine, although he says nothing concerning the inefficacy of this drug in an alkaline urine. It is rather to be regretted that the author, a teacher in one of the leading medical institutions of the country, should help to perpetuate one of the ordinary proprietary names for hexamethylenamin, referring to it as urotropin.

In the third chapter he deals with the diseases spread through the secretions of the nose and throat, including such important subjects as tuberculosis, diphtheria and the other acute exanthems. The author has taken advantage of all that recent studies have shown in connection with these conditions. It is here that the Schick test is fully discussed. Footnote 1 on page 164 belongs on page 165, and vice versa.

The fourth chapter, concerning insect-borne diseases, contains an excellent tabular arrangement giving various diseases, their causes, insects carrying the disease, and the mode of infection, as well as much practical material on the use of insecticides.

Unfortunately, infantile paralysis, which appears in Chapter V, devoted to miscellaneous diseases, is not complete with the great epidemic of 1916. In the section on leprosy, the author recommends the establishment of a national leprosarium, and it is pleasant to report that this recommendation was carried out by the last Congress.

Chapter VI, on mental hygiene, is written by Dr. Thomas W. Salmon, a recognized specialist in this field. In the first edition this chapter was called "The Prevention of Mental Diseases," but it has been somewhat elaborated, which is the reason for the new title.

Following some general considerations on quarantine and isolation, the author takes up the second section of the book, which is devoted to immunity, heredity and eugenics. The discussions are not too technical for the average reader.

The third section concerns foods. This is a subject to which more and more attention is being given daily by physicians and by the public. Recent years have seen great advances, not only in methods of preparation and preservation of foods, but also in the prevention of falsification and adulteration. Milk especially is closely related to the spread of disease, and the chapter on milk is elaborate. In the chapter on plant foods, the author takes up beriberi and pellagra. He believes that Goldberger has proved his case in regard to pellagra, and that his work stands as one of the achievements in preventive medicine. Later, following a discussion of the views of the Thompson-McFadden Pellagra Commission (page 658):

> In my opinion, Goldberger's views are correct. The disease may be prevented, produced and even cured, if not too far advanced, in accordance with the view that it is caused by a faulty dietary. Before pellagra is eradicated, it will mean general education concerning balanced diets, and general prosperity sufficient to purchase the necessary articles making up such a diet.

A fourth section of the book is devoted to air, and takes up such practical questions as humidity, ventilation and poisonous gases. The fifth section concerns the soil, and the sixth section, water. Concerning the sanitation of swimming pools, he says (page 948):

> The combination of refiltration to clean the water and chlorination to disinfect the water is the best present available method to keep the water of swimming pools in satisfactory sanitary condition.

The next two sections, on sewage and refuse disposal, have been prepared by Prof. George C. Whipple, and Section 9, which concerns vital statistics, is by Dr. John W. Trask of the Public Health Service. Section 10 concerns industrial hygiene and diseases of occupation, a subject of great present day interest. In this section there is a most extensive table of industrial poisons, arranged by Dr. Charles B. Spruit of the Massachusetts General Hospital. Section 11 is devoted to schools, Section 12 to disinfection and fumigation, and the last section to the subject of military hygiene. This section is a brief discussion in thirty-two pages of the elementary requirements. It discusses the formation of the United States Army, and is up to date in its explanation of the new Officers' Reserve Corps. It follows in General Keefer's and Havard's excellent textbooks.

Dr. Rosenau's book has proved itself to be a standard on preventive medicine and hygiene.

Radiodiagnostic des affections pleuropulmonaires. Par F. Barjon, Médicin des Hôpitaux de Lyon. Paper. Price, 6 francs. Pp. 186, with illustrations. Paris: Masson et Cie, 1916.

Three short chapters discuss the general value of the Roentgen ray in the diagnosis of diseases of the chest, and the technic specially suited to this work. Then follow chapters taking up the roentgenology of general and circumscribed pleurisy, and pneumothorax; diseases of the bronchi, including foreign bodies; diseases of the lungs, such as pneumonia, abscess, gangrene, atelectasis, various types of tuberculosis, and tumors. A chapter has been added on the location in the chest of bullets and other war projectiles. The illustrations are good. Numerous schematic figures are helpful. The text is clear and reasonably concise. The diagnoses seem to be reliable, as the clinical history, surgical operation or necropsy is used as a check on errors. The book will be helpful to the practitioner or to the specialist in diseases of the lung and pleura who, while willing to have the roentgenogram made by the technical expert, is not willing to entrust to him more than a fair share of its interpretation. A book such as this will assist the physician to be his own interpreter.

Social Medicine, Medical Economics and Miscellany

MEDICAL PREPAREDNESS

A circular has just been received from Dr. F. F. Simpson, Chief of the Medical Section of the Council of National Defense, presenting the correlated activities of the medical departments of the government, the Council of National Defense and the Advisory Commission, and the Committee of American Physicians for medical preparedness, setting forth the work that has already been accomplished, and what is now being done in the way of medical preparedness. The following is a summary of the important topics in this statement:

Under existing conditions, every physician as a loyal citizen of the United States should prepare to render his service to the government. Effective service can be rendered by cooperation in accordance with the following plan.

It is desirable at this time to state explicitly what the Council of National Defense and its various agencies are.

The Council of National Defense was created by Congress, Aug. 29, 1916, to coordinate industries and resources for the national security and welfare. The council consists of the secretaries of war, the navy, the interior, agriculture, commerce and labor. An advisory commission which it nominated to the president was also appointed, consisting of seven persons, each having special knowledge of some industry, public utility, or the development of some natural resource.

The Council of National Defense conducts its work under rules and regulations approved by the president which provide for an advisory commission to develop the special knowledge of such commission by suitable investigation, research and inquiry, and to make this available for the use of the council. The council may organize subordinate bodies for its assistance in special investigations, either by the employment of experts or by the creation of committees of qualified persons.

A committee of distinguished physicians was asked to present to the president names of medical men for membership on the advisory commission. Dr. Franklin H. Martin, Chicago, was selected.

The Advisory Commission of the Council of National Defense consists of the following civilians appointed by the president: Mr. Daniel Willard, president of the Baltimore and Ohio Railroad, chairman; Mr. Hollis Godfrey, LL.D., president of Drexel Institute, Philadelphia; Mr. Howard E. Coffin of Detroit (who is also chairman of the Committee on Industrial Preparedness of the Naval Consulting Board); Dr. Franklin H. Martin, Chicago; Mr. Bernard Baruch, financier, New York; Mr. Julius Rosenwald, president of Sears, Roebuck & Co., Chicago, and Mr. Samuel Gompers, president of the American Federation of Labor.

The executive activities of the Council of National Defense are coordinated and carried out through the medium of its director, Mr. W. S. Gifford, and the chiefs of the various departments represented by the members of the Advisory Commission. Dr. Frank F. Simpson is chief of the Medical Section of the Council of National Defense.

THE ADVISORY COMMISSION

The organization of the council and of the Advisory Commission provides that each member of the Advisory Commission shall gather about himself for the effective coordination of the activities he represents a committee or board consisting of representatives of governmental departments as well as civilians.

The Medical Committee, of which Dr. Franklin H. Martin is chairman, consists of William C. Gorgas, surgeon general of the U. S. Army; William C. Braisted, surgeon general of the U. S. Navy; Rupert Blue, surgeon general of the U. S. Public Health Service; Col. Jefferson R. Kean, director general of military relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research;

Dr. William J. Mayo, chairman of the Committee of American Physicians for Medical Preparedness, and Dr. Frank F. Simpson, chief of the Medical Section of the Council of National Defense, and secretary of the Committee of American Physicians for Medical Preparedness.

COMPONENT PARTS OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS

National and State Committees.—In April, 1916, the national committee was constituted by the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. That committee undertook the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and coordinated for such purposes as might be required by the federal government.

The national committee appointed a state committee of nine men in each state of the Union. The presidents and secretaries of the various state medical associations are ex officio members of their respective state committees. It was contemplated that at the proper time committees would be perfected in each county of the country. That time has now come, and county committees are being rapidly organized. The state committees are expected to select the county committees and to supervise their formation.

Name and Personnel of County Committees.—It is the policy of the Committee of American Physicians for Medical Preparedness that the various medical interests and activities of the county shall be represented on the county committees. This is to coordinate the interests and activities so that the medical profession shall be in position to aid in the national defense. That this plan may be carried out with uniformity and precision throughout the country, the various state committees have been requested to have all county committees bear the following distinguishing name, to wit, The Auxiliary Medical Defense Committee of ——— County, in ——— State, and to provide that the county committees shall include the following resident in the county: all members of National Committee of the Committee of American Physicians for Medical Preparedness; members of the state committee; representatives of the U. S. Army; representatives of the U. S. Navy; representatives of the U. S. Public Health Service; representatives of the state board of medical examiners; representatives of the state or city public health service; ranking medical officer of the National Guard; president and secretary of the local Medical Officers' Reserve Corps Association (if there be such organization); deans of medical schools; president and secretary of the county medical society; president and secretary of other important medical societies; medical director of the local Red Cross units, and other representative medical men.

DUTIES OF COUNTY COMMITTEES

From time to time, specific duties will be assigned to the various state and county committees. These county committees are urged to take prompt action at this time in accordance with the following:

1. That these committees cooperate with the national and state committees of the Committee of American Physicians for Medical Preparedness to make available needful information regarding the civilian medical resources of their communities, and to coordinate civilian medical activities for prompt moblization in case of need.

2. That they secure applicants:

(*a*) For the Army Medical Corps. For the full complement of troops already authorized by Congress, the regular army needs about 1,200 additional medical officers. If a million men are called, a corresponding increase will be required. (*b*) For the Medical Officers' Reserve Corps, for which from 20,000 to 30,000 medical reserve officers should be enrolled. (*c*) For the Naval Medical Corps, which needs about 350 additional officers. (*d*) For the Coast Defense Reserve Corps of the Navy, for which several hundred high class reserve medical officers are desired. (*e*) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

Physicians recommended for service in national defense must be of the highest type. Medical officers who go to field duty should be under the age of 45.

3. That they cooperate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

4. That they cooperate with the Red Cross in bringing that organization to the point of highest efficiency.

ACTIVITIES OF THE COMMITTEE OF AMERICAN PHYSICIANS

The various work done by the various state and other committees was of such extent and value that the Council of National Defense at its first meeting requested the Committee of American Physicians to continue their various activities under the guidance of the Council of National Defense, and asked the secretary of the Committee of American Physicians to act as chief of the Medical Section of the Council of National Defense. Since that time the various activities have gone forward with renewed energy.

Some of the activities which have either been completed or are well under way are:

1. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2. An inventory of hospitals and other medical institutions is well under way.

3. It has been the policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the point of highest efficiency. With that in view, the members of the National Committee of the Committee of American Physicians became members of the national committee of the medical department of the American Red Cross; most of the members of the various state committees of the Committee of American Physicians were also made members of the state committee of the American Red Cross, and the various county committees will be expected to cooperate in carrying out the plans adopted by the two organizations.

4. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students, and others.

6. The appointment of a committee for the standardization of medical and surgical supplies and equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that if it should become necessary to curtail production all of the energies of the drug and instrument makers shall be devoted to providing the necessary articles, rather than those which, however desirable, are not essential. On this standardization committee are representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of distinguished members of the various specialties of civilian medicine.

7. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8. The presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to advantage. This request does not contemplate an inventory and organization of these resources. Suggestions offered by the various organizations will be carefully considered, and such as conform to the plans of the Council of National Defense and can be utilized to advantage will be adopted, when the various organizations will be requested to cooperate in perfecting plans of the Council of National Defense.

Medicolegal

Competency of Persons of Unsound Mind to Be Witnesses

(State vs. Herring et al. (Mo.), 188 S. W. R. 169)

The Supreme Court of Missouri, Division No. 2, affirms a judgment of conviction of the defendants, two attendants in the ward in which violent patients were confined in a hospital for the insane, of manslaughter in the fourth degree, where a patient in the ward who had been in the hospital nearly twelve years was permitted, over objection, to testify against the defendants. A Missouri statute provides that "the following persons shall be incompetent to testify: first, a person of unsound mind at the time of his production for examination," etc. The court says that this statute has never been construed on the precise point presented in this case. But many states have statutes either verbatim, as that of Missouri, or similar in substance and meaning to it; yet without a single dissenting voice the matter of competency of an insane person to testify has, all such statutes notwithstanding, been said to rest on a proper voir dire or preliminary examination as to competency, as at common law. In no state wherein a statute like that of Missouri on the question of competency exists has this court been able to find a contrary ruling, even though the words of the statute and the reason of the case may seem on but a casual view to call for a different rule. Likewise, the textbooks deduce from the adjudged cases a similar unanimous holding on the point. From the ruled cases we may deduce the rules: (*a*) that a person of unsound mind is competent as a witness, if (1) on examination he be found to be of sufficient mental capacity to understand the nature of an oath—that is, to know it is both a moral and a legal wrong to swear falsely, and that false swearing is a punishable crime in law, and (2) if he be possessed of sufficient mind and memory to observe, recollect and narrate the things he saw or heard; (*b*) that lawful confinement in an asylum for the insane, or an adjudication as an insane person, creates a prima facie presumption of absolute incompetency as a witness; but (*c*) such presumption is rebuttable by the voir dire (preliminary) examination of the witness alone, or when aided by extrinsic evidence; and (*d*) the burden of rebutting the presumption of incompetency in case of confinement in an asylum or adjudication as an insane person is on him who offers the witness; but (*e*) that, absent such confinement, or adjudication as an insane person, the burden of showing incompetency on account of unsoundness of mind is on him who objects on that ground.

Judgment Affirmed for Alleged Malpractice

(Christie vs. Walton (Ind.), 113 N. E. R. 750)

The Appellate Court of Indiana, Division No. 2, affirms a judgment in favor of Plaintiff Walton, for some amount not stated in the report of the case, for damages for alleged malpractice in the treatment of a burn on the plaintiff's foot. The court says that it might as well be admitted that the weight of the evidence, most of which was given by physicians, was favorable to defendant Christie, a physician and surgeon, and did not tend to show that he was negligent in diagnosis or treatment, or that skin grafting would have been successful if used. However, this court was bound to sustain the verdict for the plaintiff if there was any competent evidence on which it could rest, without considering evidence which conflicted with that which tended to sustain it. The complaint stated that the burn which the plaintiff had received was so severe that 8 or 10 square inches of skin on her foot were deadened and destroyed, and the bones of the ankle and instep were scorched, charred, burned and deadened; that the only cure or safe course in the treatment of such injury was the amputation of the foot, or the grafting of skin over the parts which had been burned after the removal of the deadened and charred parts of the bones; that she placed herself under the care of the defendant, who undertook to treat her foot, but he failed to graft skin where the skin had been destroyed; that he told the plaintiff he could cure her foot without skin grafting, and without the removal of the charred bones, by the use of "scarlet red" salve; that he negligently and unskilfully continued to use his scarlet red salve, which was not adapted for use on a burn of such degree, and negligently failed to observe that his scarlet red remedy was insufficient for the purpose for which it was being used, and negligently failed to observe that the burn was not healing with new skin, etc. By a supplemental complaint it was alleged that since the filing of the complaint the foot and ankle had become further diseased on account of the defendant's negligent and unskilful conduct, and that, in order to prevent blood poison and the further impairment of the plaintiff's health, and to save her life, it was necessary to amputate her leg above the ankle, which amputation would have been prevented if the defendant had properly treated the limb by removing the deadened portions of bone and grafting skin. The court thinks the complaint sufficiently stated a cause of action, on the theory that the defendant improperly diagnosed the case, from a want of skill or care, and used an improper remedy, and continued to use it after he should have observed that it was ineffectual, and that such treatment made the plaintiff's condition worse, and that finally, as was apparent from the supplemental complaint, led to the amputation of her foot. The next question was as to the sufficiency of the evidence to sustain the verdict. There was evidence, some of which was expert, that scarlet red was not a standard remedy for such a burn, and, if proper in such a case, the injured and charred bones should have been first removed, and some evidence of the same character tending to show that the defendant was negligent in failing to remove the charred bones, and in continuing to use scarlet red after it was apparent that it was not a proper remedy. There being some evidence to support the verdict in the plaintiff's favor, the judgment of the lower court must be affirmed.

Society Proceedings

COMING MEETINGS

American Medical Association, New York, June 4-8.

Alabama State Medical Association, Montgomery, April 17-20.
American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
American Association of Immunologists, New York, April 6-7.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Wyoming State Medical Society, Casper, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Ophthalmology, St. Louis

January, XXVI, No. 1

1 Halos of Glaucoma—Diffraction Phenomenon. V. B. Fischer, Boulder.—p. 1.
2 Causal Relationship of Deformities and Diseases of Nose and Throat to Diseases of Eye with Special Reference to Asthenopia. F. Stauffer, Salt Lake City.—p. 13.
3 Tests for Visual Acuity. E. Jackson, Denver.—p. 22.
4 Intranasal Operation for Lacrimal Obstruction with Simplified Technic. H. L. Baum, Denver.—p. 25.
5 Fuchs' Colomba with Loop Retinal Vein Hidden Behind Fold of Retina. M. Feingold, New Orleans.—p. 34.
6 Combined Use of Cross Cylinder and Astigmatic Dial. W. H. Crisp, Denver.—p. 42.
7 Treatment of Cataract During Earlier Stages. H. M. Thompson, Pueblo.—p. 47.
8 Cycloplegics in Measurement of Ametropia. E. Jackson, Denver.—p. 56.
9 Relation of Mouth to Ocular Diseases. W. C. Finnoff, Denver.—p. 66.
10 Some Personal Experiences which Have Stood the Test of Time. M. Black, Denver.—p. 73.
11 Tubercle of Conjunctiva. J. A. Patterson, Colorado Springs.—p. 76.
12 Use of Eyes of Kittens in Ophthalmic Operative Teaching. W. A. Fisher, Chicago.—p. 79.

Archives of Diagnosis, New York

January, X, No. 1

13 Diagnosis of Duodenal Ulcer. J. B. Deaver, Philadelphia.—p. 1.
14 Possible Dependence of Gastric and Duodenal Ulcer in Man on Disturbance of Internal Secretions. G. A. Friedman, New York.—p. 8.
15 Prognosis of Duodenal Ulcer. M. Einhorn, New York.—p. 24.
16 Pseudoleukemic Anemia of Von Jakșch. R. Kilduffe, Jr., Chester, Pa.—p. 26.
17 Relationship of Ductless Glands to Arterial Diseases. J. Daland, Philadelphia.—p. 32.
18 Ductless Glands in Dementia Praecox. F. X. Dercum, Philadelphia.—p. 38.
19 Field of Internal Medicine. R. W. Wilcox, New York.—p. 45.
20 Graham Steele Murmur (Relative Pulmonary Insufficiency). J. Epstein, New York.—p. 59.
21 Biochemistry, Immunity and Infectious Diseases. I. J. Levy, New York.—p. 62.

Archives of Internal Medicine, Chicago

March, XIX, No. 3

22 *Effect of Bandaging of Legs on Rate of Blood Flow in Feet. G. N. Stewart, Cleveland.—p. 335.
23 *Bile Content of Blood in Pernicious Anemia. M. A. Blankenhorn, Cleveland.—p. 344.
24 Refractometric Studies of Serum Proteins in Nephritis, Cardiac Decompensation, Diabetes, Anemia and Other Chronic Diseases. A. H. Rowe, Oakland, Calif.—p. 354.
25 *Bacteriologic Studies in Subacute Streptococcus Endocarditis. R. A. Kinsella, New York.—p. 367.
26 *Bacteriologic Studies in Acute Rheumatic Fever. H. F. Swift and R. A. Kinsella, New York.—p. 381.
27 Malone-Kiutsi Reactions in Pregnancy and Cancer. S. Berkowitz, New York.—p. 397.
28 Relation of Pregnancy and Childbirth to Pellagra in Women. J. F. Siler, U. S. Army, P. E. Garrison, U. S. Navy and W. J. MacNeal, New York.—p. 404.
29 Studies on Typhoidin. J. N. Force and I. M. Stevens, Berkeley, Calif.—p. 440.
30 Reliability of Wassermann Reaction. R. Ottenberg, New York.—p. 457.
31 *Bacteriology of Urine in Focal Infections; Its Relation to Nephritis. G. F. Dick and G. R. Dick, Chicago.—p. 493.

22. **Bandaging of Legs and Rate of Blood Flow.**—It has been suggested by some observers of the condition known as "trench-foot," that obstruction of the venous return by puttees was an important contributory factor. The effect of relatively short applications of the puttees was studied by Stewart. He found that a puttee applied with the usual degree of pressure on the leg causes no diminution in the blood flow through the foot. When it is put on so tight that some discomfort is produced the flow in the foot is at first reduced.

23. **Bile in Blood in Pernicious Anemia.**—The plasma of twenty patients in whom a diagnosis of pernicious anemia had been made was examined by Blankenhorn for bile and bile pigments. In sixteen there was found bilirubin in amounts sufficient to give a positive Gmelin test. In two of the remaining four the plasma was visibly jaundiced, but not deeply enough to give a test. Of the eighteen cases showing staining of the plasma, nine were visibly jaundiced in the sclerae; of the remaining nine, only one gave a history of ever being yellow. The cases showing the highest concentration of bilirubin showed the most marked evidence of rapid blood destruction, namely, increased output of urobilin in stool and urine, loss of strength from anemia, also the highest color index. Urobilin was not found in the plasma of any, although it occurred in the urine of all save one, this one being a case which showed absolutely no staining of the plasma. A positive Pettenkofer test for salts was found in sixteen out of twenty plasmas. Of the four which did not give a positive Pettenkofer test, there were two plasmas which contained a large amount of bilirubin and two which contained none at all. The cases giving the strongest Pettenkofer, hence highest concentration of salts, showed the most marked nerve lesions; in fact in three such cases the nerve lesions caused all the symptoms of the disease. Blankenhorn concludes that bile pigment is frequently found in the blood in pernicious anemia, and is the cause of the jaundice. The bile pigment is in some way fixed to the plasma and therefore does not appear in the urine. The presence of bile pigment in the blood is not always betrayed by jaundice. Bile salts are frequently found in the blood, alone or associated with bile pigment. The jaundice in pernicious anemia is hepatic in origin.

25. **Bacteriology of Streptococcus Endocarditis.**—It was Kinsella's purpose to search for distinctive features in the group of streptococci associated with subacute streptococcus endocarditis. Twelve typical cases were studied. Each patient repeatedly yielded a positive blood culture. The streptococcus isolated was always in pure culture and identical with the organisms of each of the other cultures in the same case. The streptococci belong to the saprophytic types according to Andrewes and Horder's classification and are of low virulence. They are nonhemolytic and may or may not be green producers. Biochemical and immunologic tests fail to show any constant identity between the individual streptococci concerned in producing this disease. The patients' blood serums contain agglutinating and complement fixing antibodies. The reduction in the bacteriemia following transfusion with blood and impure saline depends on febrile reactions on the part of the patient. If such reactions do not occur, as when saline-free transfusions are used, no reduction in bacteremia results. No noticeable benefit accrues in either case.

26. **Bacteriology of Rheumatic Fever.**—This study was undertaken by Swift and Kinsella to determine whether any constant cultural or immunologic type of bacterium was associated with acute rheumatic fever. They studied the type of streptococci which they were able to isolate from the blood of patients with acute rheumatic fever. In all fifty-eight cases have been studied. All were typical cases, showing fever and polyarthritis, and responded in the characteristic manner to salicylates. Altogether eighty-five blood cultures were made on fifty-eight patients with seven positive results, a percentage of 8.3. All of the cultures of joint exudates have been sterile. Similar nonhemolytic streptococci have been recovered from the active endocardial lesions in only half of the fatal cases of acute rheumatic fever. From the above results it seems evident that no type of streptococcus has been constantly associated with acute rheumatic fever. The authors do not feel that the etiologic relationship between the streptococcus and acute rheumatic fever has been definitely proved, but if the streptococcus is the etiologic agent in acute rheumatic fever, it is shown by means of cultural and immunologic studies that it is through various members of the viridans group, and hence no one member can be called the *Streptococcus rheumaticus*.

31. **Bacteriology of Urine in Focal Infection.**—Eighteen patients were examined by G. F. and G. R. Dick. In six of these the bacteria when found in the urine did not correspond to those found in the focus of infection from which cultures were made. In four cases a partial correspondence was found between the bacterial flora of the urine and that of the focus

of infection. In eight cases the correspondence was more striking. Two of the eight patients showed no clinical evidence of renal lesion. One of these, however, had persistently high blood pressure (150 mm.). In the remaining patients there were from mild to severe renal lesions present, but there was no very constant relation between the severity of the lesion and the number of bacteria in the urine. The finding of considerable numbers of bacteria in the urine in 66 per cent. of patients with evident foci of infection indicates that in diseases where migration of bacteria from foci of infection takes place, the bacteria are often present in the urine.

Arkansas Medical Society Journal, Little Rock

March, XIII, No. 10

32 Management of Fractures. J. A. Foltz, Fort Smith.—p. 203.
33 Radium; Its Physical Properties and Therapeutic Value. D. Gann, Jr., Little Rock.—p. 205.

Colorado Medicine, Denver

March, XIV, No. 3

34 Faucial Tonsil in Its Relation to Systemic Conditions. A. C. Magruder, Colorado Springs.—p. 68.
35 Pledge of American College of Surgeons and What It Signifies. H. G. Wetherill, Denver.—p. 75.
36 Nature and Treatment of Sciatica. C. L. Pershing, Denver.—p. 79.
37 Five Cases of Tuberculosis Treated with Cyanocuprol. N. Kunitomo, Denver.—p. 83.
38 Constipation and Obstipation. F. R. Coffman, Denver.—p. 86.

Indiana State Medical Association Journal, Fort Wayne

March, X, No. 3

39 *Two Cases of Extra-Uterine Pregnancy at or Near Term. E. D. Clark, Indianapolis.—p. 89.
40 *Radium Therapy. T. C. Kennedy, Indianapolis.—p. 105.

39. Abstracted in The Journal, Oct. 21, 1916, p. 1249.

40. Abstracted in The Journal, Oct. 28, 1916, p. 1327.

Journal of Biological Chemistry, Baltimore

March, XXIX, No. 2

41 *Vitamin Content of Brewers' Yeast. A. Seidell, Washington, D. C.—p. 145.
42 Improved Nephelometer Colorimeter. P. A. Kober, Albany, N. Y.—p. 155.
43 Rapid Method for Determining Calcium in Blood and Milk. H. Lyman, Boston.—p. 169.
44 *Studies on Animal Diastases. Increased Diastatic Activity of Blood in Diabetes and Nephritis. V. C. Myers and J. A. Killian, New York.—p. 179.
45 Amino-Acid Nitrogen Content of Blood of Various Species. J. C. Bock, New York.—p. 191.
46 Separation and Estimation of Butyric Acid in Biologic Products. I. K. Phelps and H. E. Palmer, Washington, D. C.—p. 199.
47 Thiobarbituric Acid as Qualitative Reagent for Ketohexose. G. P. Plaisance, Ames, Iowa.—p. 207.
48 Growth of Isolated Plant Embryos. G. D. Buckner and J. H. Kastle, Lexington, Ky.—p. 209.
49 Fetal Athyrosis. Study of Iodin Requirement of Pregnant Sow. G. E. Smith, Bozeman, Mont.—p. 215.
50 *Studies in Carbohydrate Metabolism. Influence of Alkali Administration on Blood Sugar Content in Relation to Acid Base Producing Properties of Diet. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 227.
51 *Id. Influence of Acid Forming and Base Forming Diets on Blood Sugar Content. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 233.
52 Id. Relation of Epinephrin Glycosuria to Dosage and to Character of Diet. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 245.
53 *Id. Further Experiments on Influence of Intravenous Injection of Sodium Carbonate on Epinephrin Hyperglycemia and Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 251.
54 *Id. Relation of Diet to Glycogen Content of Liver. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 255.
55 Id. Influence of Intravenous Injection of Sodium Carbonate on Hyperglycemia and Glycosuria Following Subcutaneous Administration of Glucose. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 265.
56 Id. New Experiments on Mechanism of Salt Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 273.
57 Studies of Autolysis. Influence of Bile on Autolysis. H. C. Bradley and J. Taylor, Madison, Wis.—p. 281.
58 *Use of Cotton Seed as Food. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 289.
59 *Composition of Adipocere. R. F. Ruttan and M. J. Marshall, Montreal, Canada.—p. 319.
60 Applications of New Reagent (Permutit) for Separation of Ammonia. Colorimetric Determination of Ammonia in Urine. O. Folin and R. D. Bell, Boston.—p. 329.
61 *Calcium Content of Cerebrospinal Fluid, Particularly in Tabes Dorsalis. J. O. Halverson and O. Bergeim, Philadelphia.—p. 337.
62 Nature of Dietary Deficiencies of Oat Kernel. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.—p. 341.
63 Method of Timed Intravenous Injections. R. T. Woodyatt, Chicago.—p. 355.
64 Effect of Bile and Bile Salts on Reaction Between Oleic Acid and Sodium Bicarbonate. F. B. Kingsbury, Minneapolis.—p. 367.
65 *Variations in Composition of Human Milk During First Eleven Days After Parturition. F. S. Hammett, Los Angeles, Calif.—p. 381.
66 Rate of Urea Excretion. Effect of Changes in Blood Urea Concentration on Rate of Urea Excision. T. Addis and C. K. Watanabe, San Francisco.—p. 391.
67 Id. Effect of Changes in Volume of Urine on Rate of Urea Excretion. T. Addis and C. K. Watanabe, San Francisco.—p. 399.

41. **Vitamin Content of Brewers' Yeast.**—In the case of pigeons, the vitamin deficiency of an exclusive diet of polished rice is just replaced by daily doses of 0.5 to 1.0 c.c. of the clear filtrate from autolyzed brewers' yeast. Doses of dried freshly pressed yeast approximately equivalent to 1.0 c.c. doses of autolyzed yeast do not effectively replace the vitamin deficiency of a diet of polished rice.

44. **Increased Diastatic Activity of Blood in Diabetes and Nephritis.**—A simple method for the determination of the diastatic activity of human blood is described by Myers and Killian. The diastatic activity of the blood in six normal human subjects ranged from 15 to 17 with this method. In a series of thirteen cases of diabetes, the figures for the diastatic activity of the blood varied from 39 to 74. In a series of twenty-three cases of nephritis, eleven showed diastase figures ranging from 30 to 52. Of the eleven cases, seven exhibited marked nitrogen retention. The results suggest that the increased diastatic activity in both diabetes and nephritis (as shown by the analyses of the blood) may be the important factor in the production of the hyperglycemia in these conditions. The increased diastatic activity of the blood in nephritis finds probable explanation in the decreased excretion of diastase in the urine, now well known in this condition, but it is not possible, at present, to offer a satisfactory explanation of the increased diastatic activity of the blood in diabetes. A fall in the blood diastase would appear to afford a more reliable guide to the efficacy of the dietetic treatment in diabetes than either the blood sugar or urine sugar. Furthermore, an increase in blood diastase may constitute a very early sign of impending diabetes.

50. **Influence of Alkali Administration on Blood Sugar.**—In new experiments on the influence of sodium carbonate on the blood sugar content of normal rabbits on a mixed diet, hypoglycemia has invariably failed to manifest itself. The variable potency of sodium carbonate in the production of hypoglycemia, as reported by Underhill, cannot be explained by variations in the acid-base-producing possibilities of the diet, inasmuch as wide ranges in these directions apparently play a small part in influencing the blood sugar content of normal rabbits.

51. **Influence of Acid-Base Diets on Blood Sugar.**—In a normal rabbit the blood sugar content is not significantly changed by variations in the acid-base content of the diet which are sufficient to cause a marked change in the hydrogen ion concentration of the urine. These results are in agreement with those of the preceding paper, which indicate that the blood sugar content of a normal rabbit is not usually appreciably affected by intravenous injections of dilute alkali.

53. **Influence of Sodium Carbonate on Epinephrin Hyperglycemia.**—The present experiments confirm the statement of Underhill that the hyperglycemia and glycosuria provoked by epinephrin are both significantly decreased if sodium carbonate is administered at suitable periods of time previous to epinephrin introduction. Intravenous injection of sodium carbonate modifies significantly the influence of the minimum effective dose of epinephrin, but does not prevent the occurrence of hyperglycemia and glycosuria. In fact, it appears that, with the smaller dose of epinephrin, hyperglycemia and glycosuria are diminished relatively less by sodium carbonate than when larger doses of epinephrin are administered.

54. **Relation of Diet to Glycogen Content of Liver.**—The results obtained indicate that in normal rabbits a base forming diet is somewhat more efficient in the formation of glycogen than an acid producing diet. This is in agreement with the results of previous investigators, who have found that an excess of alkali contributes to the accumulation of glycogen. Notwithstanding this fact, it has also been demonstrated that a large storage of glycogen may take place on an acid forming diet when sufficient food is ingested.

58. **Cotton Seed as Food.**—The studies made by Osborne and Mendel show that cotton seed kernels are unsatisfactory for nutrition. Such samples of cotton seed meal and flour as have been tested were valuable foods for growing rats when used as the sole source of protein in the food, or when used in smaller quantity to supplement other less efficient protein concentrates. The injurious substance in the kernels can be removed by extraction with ether. The ether soluble material is deleterious, either because it contains some toxic ingredient or because it renders the food containing it so unpalatable that the animals refuse to eat it. Foods containing cotton seed oil prepared by pressing the kernels in the cold, or furnished as the crude unbleached commercial oil prepared by heating the kernels before pressing them, are eaten without detriment by rats. By treatment with steam under suitable conditions the kernels lose their deleterious effect on rats.

59. **Composition of Adipocere.**—As a result of their studies Ruttan and Marshall conclude that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble saturated fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared and the glycerol, soaps, etc., resulting from the hydrolysis have been carried away in aqueous solution. The insoluble hydroxy stearic acids which are so characteristic of adipocere are probably derived from a portion of the oleic acid in the original fat by hydration. No margaric acid or oxy margaric acid is present. Ammonia and other soluble soaps are absent; calcium soaps alone are present in small quantity in a matured specimen of adipocere.

61. **Calcium Content of Cerebrospinal Fluid.**—The calcium content of the cerebrospinal fluid of adults is very constant at about 5.0 mg. of the element in 100 c.c. of fluid. This is approximately one half the calcium content of the blood plasma or serum of similar individuals. The calcium content was determined by Halverson and Bergeim in a number of cases of syphilis of the nervous system. Variation greater than 0.3 mg. from the value given was obtained in but a single very severe case. In tabes dorsalis an average of 5.1 gm. was obtained. Repeated drainage did not appear to affect the composition of the fluid in respect to calcium.

65. **Variations in Composition of Milk After Parturition.**—In summing up the variations observed in the chemical composition of human milk during the first eleven days after parturition, Hammett found that from the quantitative point of view fat and lactose increase in amount during the period studied, while there is a falling off in the production of protein. The three constituents fall into the following order of decreasing variability; fat, protein, lactose. The protein mechanism is apparently the best regulated and is less dependent on the factors controlling the fat and lactose production than they are on each other. For the single constituents there is a production plane uniform for the individual subject. This plane of production is fixed for the individual, independent of the plane of nutrition and dependent on the individuality. An increase or decrease in the lactose production is generally accompanied by a change in the opposite direction in the percentage of fat and protein.

Journal-Lancet, Minneapolis

March 15, XXXVII, No. 6

68 Relation of Medical Men to Present Day Social Changes. J. G. Cross, Minneapolis.—p. 169.
69 *Standardization of Digitalis and Potency of Minnesota Leaf. R. E. Morris, Minneapolis.—p. 176.
70 Obstetrics in Rural Community. M. D. Westley, Cooperstown, N. D.—p. 181.
71 Indications for Cesarean Section. W. A. Coventry, Duluth.—p. 185.
72 Technic of Tonsillectomy. J. Matthews, Rochester.—p. 190.
73 Diagnosis of Gastroduodenal Lesions. J. M. Lajoie, Minneapolis. —p. 191.

69. **Standardization of Digitalis and Potency of Minnesota Leaf.**—Among the various species of Minnesota digitalis Morris assayed (grown by the Department of Pharmacy, University of Minnesota) ferruginea, lutea, lanata, grandiflora and others show that they equal the purpurea, the form ordinarily used. There exist some twenty-three or more species and numerous varieties. Ferruginea, lutea and lanata exceed the pururea in toxicity, the last two belonging to the narrow-leaf form, and have been found true to name and reproduce themselves in pure stand. During the observations in assaying the various forms, the species lutea was prominently noticed. It ranks in toxicity with the higher grades of digitalis purpurea, but the lack of irritation and the quiet lethal period in cats was so marked as to suggest the use of digitalis lutea in man with the hope of finding here a preparation causing less than the usual gastro-intestinal irritation. As a result of this suggestion, Morris is now using both the tincture and the infusion of digitalis lutea clinically in the wards of the University Hospital with the best of results. Morris emphasizes (1) the necessity for a greater care in the use of digitalis, (2) the necessity for a standardized drug, and (3) an accurate dosage. He says that there is no need of using the exorbitant priced extractives if these three points are followed.

Medical Record, New York

March 17, XCI, No. 11

74 Real Cancer Problem. L. D. Bulkley, New York.—p. 441.
75 Physiology and Pathology of Menopause. G. Richter, St. Louis. —p. 446.
76 New Status of Exophthalmic Goiter. E. H. Reede, Washington, D. C.—p. 450.
77 Chronic Appendicitis Mistakes. J. R. Verbrycke, Jr., Washington, D. C.—p. 455.
78 Neurologic Pitfalls in General Practice. M. Keschner, New York. —p. 458.

New York Medical Journal

March 17, CV, No. 11

79 Medical Corps of Navy. R. C. Holcomb, Washington, D. C. —p. 481.
80 Prevention and Treatment of Cancer Based on Roentgen-Ray Findings of Dental Infection and Use of Autogenous Vaccine. S. Tousey, New York.—p. 485.
81 Surgical Treatment of Puerperal Septicemia. A. S. Brinkley, Richmond, Va.—p. 487.
82 Surgical Aspects of Gastric and Intestinal Stasis. H. F. Graham, New York.—p. 490.
83 Saliva in Diabetics. L. N. Boston and L. W. Kohn, Philadelphia. —p. 497.
84 Significance and Technic of Cardiac Functional Tests. C. W. Lieb, Watkins.—p. 502.
85 Treatment of Duodenal Ulcer from Medical Standpoint. W. A. Bastedo, New York.—p. 505.

New York State Journal of Medicine

March, XVII, No. 3

86 Studies in Acidosis. C. G. Stockton and J. L. Butsch, Buffalo. —p. 107.
87 Typhoid in Children. G. C. Sincerbeaux, Auburn.—p. 110.
88 Diagnosis in Gynecology. T. J. Watkins, Chicago.—p. 112.
89 *Modification of Usual Clubfoot Operation, by Addition of Tendon Transplantation or Tendon Fixation, or Both. P. Le Breton, Buffalo.—p. 115.
90 *Case of Leukemia in Boy, with Some Observations on Benzol. F. S. Winslow and W. D. Edwards, Rochester.—p. 116.
91 Is Medicine a Business? J. M. Swan, Rochester.—p. 118.
92 Useful Urine Analyses. H. Greeley, Brooklyn.—p. 121.
93 Practical Experiences with Ductless Glands. S. Block, Brooklyn. —p. 125.
94 Effects of Tonsil Operations in Singers; Analysis of Five Thousand Cases. I. W. Voorhees, New York.—p. 131.
95 Health Insurance from Public Health Viewpoint. A. Krida, Schenectady.—p. 134.
96 Experiences in French Military Hospital. R. M. Eaton, Wellsville.—p. 137.
97 Experiences in Serbia During War, with Special Reference to Typhus Epidemic of 1915. E. F. Butler, Yonkers.—p. 139.
98 Honor of Profession. L. Emerick, Saugerties.—p. 144.

89. **Clubfoot Operation.**—During the past three years Le Breton has been adding to the usual wedge operation, two procedures, sometimes the one, sometimes the other, sometimes both, according to the case. These are, first, a tendon

the process being repeated until the disinfectant came away free from the pus. Lately Carline washed out the joint with a saturated solution of magnesium sulphate.

15. **Malaria Treated with Injections of Antimony.**—A patient with heavy crescent infection was given antimony injections by Low and Newham, a careful daily estimation of the crescents being made afterward. The vitality of the parasites was also tested to determine whether they would flagellate or not after the administration of the drug. The antimony had not the slightest effect on the crescents, their number fluctuating up and down quite irrespective of the injections. Six intravenous injectons in all were given, beginning with 1 grain and increasing to 2½ grains, the last three injections consisting of the maximum dose. That the parasites were not dead was proved by the fact that they were alive and active in fresh blood, and proceeded to flagellation in a normal manner. In addition to the crescents, a scanty ring infection was also present; again the drug appeared to have no effect on these. Beneficial results were obtained from quinin and increasing doses of arsenic.

Glasgow Medical Journal

February, LXXXVII, No. 2

16 *Action of Pituitary Extract on Surviving Human Uterus. F. J. Charteris.—p. 65.
17 Residual Urine in Senile Bladder; Conduct of Case so as to Postpone or Avoid Use of Catheter. D. Newman.—p. 73. To be continued.
18 Case of Mediastinal Tumor (Endothelioma) with Expansile Pulsation. W. R. Jack and J. H. Teacher.—p. 84.

16. **Action of Pituitary Solution on Surviving Human Uterus.**—Charteris' material includes nonpregnant tissue, tissue removed after early abortion, and tissue removed by cesarean section at full time. He found no essential difference in the response to pituitary solution in the pregnant and nonpregnant human tissue. Both responded promptly to pituitary solution by an increased acivity. The contractions are more numerous, the individual contraction is shorter, the relaxation is somewhat quicker, and the tonus is markedly increased. This action is very promptly produced. Within a minute of adding the pituitary solution the stimulant action is seen, and, as a rule, the stimulation lasts for several minutes (fifteen, twenty or thirty minutes). A subsequent additional dose either renews the stimulus or intensifies the action if the previous effect has not entirely passed off. In addition to pituitary solution, various other uterine tonics were tested —epinephrin, ergotin, liquid extract of ergot and quinin, but none of them produced the prompt effect of pituitary extract. Ergot was unreliable. Fresh standardized preparations were fairly active, but old preparations were inactive. Pituitary extract was, so far as possible, tested in conditions analogous to those in which it is used clinically, that is, when the uterine contractions were failing in strength or ceasing. Even in these conditions its stimulant action was well shown. When the contractions had ceased for some time, it promptly initiated regular strong contractions, and strengthened contractions which were becoming weak.

Lancet, London

March 3, I, No. 4879

19 Indian Operation of Couching for Cataract. R. H. Elliot.—p. 325. To be concluded.
20 *Treatment of Septic Wounds with Bismuth-Iodoform-Paraffin Paste. L. G. Anderson and H. Chambers.—p. 331.
21 *Bacteriologic and Chemical Action of Bismuth-Iodoform-Paraffin Paste. H. Chambers and J. N. Goldsmith.—p. 333.
22 Clinico-Anatomic Investigation of Rapidly Fatal Case of General Paralysis Due to Acquired Syphilis. T. E. K. Stansfield and F. W. Mott.—p. 335.
23 Prevalence of Spirocheta Eurygyrata in Europeans and Natives in Gold Coast. J. W. S. Macfie.—p. 336.
24 Case of Acute Dilatation of Stomach Following Gastrojejunostomy. F. Godfrey.—p. 340.
25 *Case of Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis. R. M. Glover.—p. 340.

20. **Septic Wounds Treated with Bismuth-Iodoform-Paraffin Paste.**—The paste used by Anderson and Chambers is the one first used by Rutherford Morison. Its composition is as follows: 2 ounces of iodoform, 1 ounce of bismuth subnitrate and a sufficient quantity of liquid paraffin. Any consistency may be made, but the most useful are those of soft butter and thick cream. The patient is anesthetized, all gangrenous and necrosed tissue is cut away and the wound thoroughly cleansed; it is swabbed out with alcohol, and then a small portion of the paste is vigorously rubbed into the tissues, a little being left in the bottom of the wound, which in many cases is closed with interrupted stitches and dressed with gauze wrung out in alcohol. No further dressing is required for seven to fourteen days. Observation shows that (*a*) the paste maintains a continuous antiseptic action in the wound; (*b*) it acts as a lymphagogue, and a free exudation of serum washes the wound from within outward; (*c*) it does not prevent the escape of discharge; (*d*) granulation tissue grows freely in contact with it; (*e*) drainage tubes and gauze drains are unnecessary; (*f*) septic wounds heal nearly as rapidly as noninfected ones; (*g*) bone union is rapid and the tendency to form sequestra is slight. The details of a large number of severe wounds treated with bismuth-iodoform-paraffin paste have been collected and summarized. In a total of 400, only one case of secondary hemorrhage occurred. No case of gas gangrene or tetanus has developed since this treatment was begun. One case of iodoform poisoning occurred when the treatment was first begun and when larger quantities of paste were used; it was characterized by fever, emaciation and delirium. The symptoms subsided when the treatment was discontinued. The principles which underlie this method of treatment and that of Carrel and Dakin are compared. In the latter a very powerful antiseptic agent of high solubility is employed, but the effect is so transitory that it is necessary to renew it at short intervals. This paste contains a less powerful antiseptic and one which is of feeble solubility, but which is able to keep up a continuous action in the depths of the wound without requiring to be renewed for days or even weeks.

21. **Chemical Action of Bismuth-Iodoform-Paraffin Paste.**—The bacteriologic tests were made in tubes of nutrient broth containing 20 per cent. horse serum, the test organism being a twenty-four-hour culture of *Staphylococcus pyogenes*. A preliminary test showed that the paste completely sterilized after twenty-four hours' incubation, whereas pastes of bismuth subnitrate or of iodoform with small quantities of paraffin have no appreciable action. It seems clear that the bactericidal action results from the free iodin liberated from the oxidation of iodoform by oxygen and by the nitric acid formed by the hydrolysis of bismuth subnitrate. On this hypothesis it should be possible to reduce very largely the quantity of bismuth subnitrate and still obtain bactericidal action, provided oxygen is available, but in the absence of oxygen the reaction should cease, even with the usual maximum amount of bismuth subnitrate. Both these conclusions were confirmed by in vitro experiments. Numerous cultures taken from open wounds under treatment have shown, without exception, that the wounds are not bacteriologically sterile, but there is a reduction in the number of bacteria. No change in the flora has been detected. Many wounds are infected with anaerobic organisms, and *B. perfringens*, the bacillus of malignant edema, *B. Hibler* IX., and *B. tetani* have been recovered from some of these cases. Although the organisms are present in the wounds, they are not able to proliferate freely, and the wounds heal as if surgically clean. Most of the cases under this treatment excrete to a varying extent products of the decomposition of iodoform, and the general effects of iodid absorption may have some bearing on the results.

25. **Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis.**—Glover's patient presented the usual signs and symptoms of an acute suppurative appendicitis, except that localized abdominal tumidity and tenderness were situated rather higher and nearer the middle line than usual. At operation, a few hours after admission, Glover opened into a localized abscess cavity with an extension downward toward the pelvis, and fecal smelling, dark colored pus at once escaped. When the pus had been removed he observed a long tube lying free in the abscess cavity. The tube was about 7 inches long, rather thicker than an average appendix, had no mesentery, and originated from the ileum. About 1 inch from its intestinal origin it was dilated to the shape and size of a

tangerine orange. The bulbous part was gangrenous, black in color, stippled with grayish points. The intestinal ostium of the tube was about 1 inch in diameter. Distally the tube tapered away to a thin fibrous cord which disappeared backward among adhesions. It was a persistent, patent, inflamed and gangrenous Meckel's diverticulum.

Medical Journal of Australia, Sydney

February 10, I, No. 6

26 Meningitis Associated with Gram Positive Bacilli of Diphtheroid Type. E. Atkinson.—p. 115.
27 Hysterectomy for Suppurating Myoma. R. H. Marten.—p. 118.
28 Traumatic Severance of Inferior Rectus Oculi; Suture; Recovery. J. C. Halliday.—p. 119.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXVI, No. 2

29 Some Experiences of Cyanocuprol against Surgical Tuberculosis. S. Omura.—p. 9.
30 Cyanocuprol and Tubercular Lymphadenitis. W. Takahashi.—p. 10.
31 Various Ways of Employing Common Salt. K. Karasawa.—p. 10.
32 Bacillus in Blood of Typhoid Patient. H. Kiyooka.—p. 13.

Archives Médicales Belges, Paris

January, LXX, No. 1, pp. 1-96

33 *The Medical Profession in Two Years of War. (Après deux ans de guerre.) M. Stassen and J. Voncken.—p. 5.
34 *War Wounds of the Knee. (Les plaies articulaires du genou par projectiles de guerre.) P. Derache.—p. 11.
35 *Malaria in Flanders. (Fièvre paludéenne des Flandres. Quelques remarques sur la ponctuation basophile des hématies.) E. Renaux.—p. 24.
36 Social Medicine in England. R. Sand.—p. 34.
37 Recent Literature on War Wounds of Peripheral Nerves. R. Marchal.—p. 44.

33. **The Medical Profession in Two Years of War.**—Stassen and Voncken comment on the overwhelming disappointment when it was found that asepsis was out of the question with war wounds. The discouragement led to an era of mutilating operations to get rid of the inevitable infection. They state that Carrel, more than any one else, is responsible for having arrested this stampede retreat of discouragement before infection. He proved that it was not necessary to amputate and cut away so much tissue; there was a chance to conquer the infection without this. This audacity on the part of the surgeons has been justified by the healing even of cavities of joints under primary suture after physiologic treatment, when all other methods of treatment had disastrously failed. Even abdominal wounds are now attacked with comparative confidence; immediate rational intervention is now the rule. The question as to the best means of managing skull wounds has not been decided as yet; the grave future of those wounded in the skull still induces hesitation as to operative intervention. Time has not yet given its decisive answer as to whether suture to prevent hernia of the brain is wise or not. Other questions which have been studied and solved in large measure are the recrudescence of malaria, icterohemorrhagic spirochetosis, trench foot, shell shock and minute hemorrhages from air concussion, the morbid consequences of fatigue and, particularly, the connection between fatigue and insufficiency of the suprarenals—all these have been studied in detail and on such large numbers of cases that decisive conclusions have been drawn. In addition to all this scientific work, the physician in close touch with the troops at the front has played the comforter, the encourager. and confidant. In short, they remark in conclusion, the two years of war in Belgium have shown that the medical profession is equal to its task and is supreme in these days of the reign of suffering and death.

34. **War Wounds of the Knees.**—Derache declares that a war wound of the knee is not inevitably doomed to suppurate. If given a thorough surgical cleansing, it can be left to heal under its own natural defensive powers. If the bone has not been shattered, rubber drains should not be used, but the joint should be opened up widely and rinsed out, suturing after this the synovialis and the capsule. Early exercise of the joint from the very first few days aids materially in restoring function. A number of typical cases are reported to show the preferable technic for the different kinds of gunshot and shell wounds. Depage has recently published some statistics showing recovery with restoration of function in 24.1 per cent. of twenty-nine cases treated by drainage as was considered necessary at first. During the period after this, Carrel's method of treating wounds was strictly applied and complete recovery with restitution of function was obtained in 46.87 per cent. of thirty-two cases. Since then it has been his practice to suture the wound at once, even if the bone has been injured. After careful surgical cleansing of the region, extraction of projectiles and profuse rinsing out of the joint with Dakin's solution or ether, the bones scraped with the curet or gouge, the joint is then sutured in several tiers, leaving a small rubber drain in contact with the injured bone for twenty-four hours, and immobilizing. Of the twenty-two wounds thus treated complete recovery with restoration of function was realized in 86.36 per cent. The difference in the proportions of suppurations in these three periods is shown by the figures: 68.8, 28.12 and 4.54 per cent. The number of cases of ankylosis was respectively: 37.93, 18.75 and 13.63 per cent., while the amputations required were respectively 34.4, 15.62 and 0, and none of the patients died in the later period.

35. **Malaria in Flanders.**—Renaux remarks that although acute malaria has long had only historical interest in Belgium, yet malaria has never died out completely there. A few chronic cases have been encountered from time to time in the last few decades. But the wartime conditions, the flooding of the country as a protection against the enemy, and defective hygienic measures have led to the flaring up anew of the old embers of malaria, and he has been able to identify nineteen cases in the Bourbourg and Gravelines hospitals. Malaria had not been suspected at first, and the cases had been labeled pneumonia, grip, febrile gastric disturbance, etc. None of those affected had ever been in tropical countries. The lack of any regularity in the recurrence of the fever aided in the overlooking of the true cause of the disturbances. Even when there was a regular rhythm in the fever, it varied from daily to tertian and vice versa. Under quinin the men rapidly recovered, and only two have returned with a recurrence since. The parasites were of different sizes and seemed to represent a type midway between the quartan and the benign tertian. They take the usual stains a little abnormally. He noted in the blood of these patients numerous basophil punctated red corpuscles, such as are considered typical of anemia and lead poisoning.

Bulletin de l'Académie de Mêdecine, Paris

February 6, LXXVII, No. 6, pp. 161-180

38 *Adhesive Posterior Pericarditis. (Recherches et remarques sur le péricarde postéro-supérieur.) E. Delorme.—p. 162.
39 Subperitoneal Extraction of Paravertebral Projectiles. S. Mercadé. —p. 170.
40 The Electric Reactions with Local Hypothermia. H. Bordier.—p. 172.
41 *Uremia and the Internal Secretions. A. Rémond and Minvielle. —p. 174.
42 Movable Artificial Stump for Artificial Eye in Case of Enucleation from War Wounds. (Moignon mobile artificiel pour prothèse oculaire applicable dans presque tous les cas d'énucléation forcée.) A. Magitot.—p. 177.

February 13, No. 7, pp. 181-216

43 Mixing Cornmeal with Flour in Bread Making. (Sur l'addition de la farine de maïs à la farine de blé.) D. Berthelot.—p. 207.
44 *Resuscitation by Stimulation of the Accelerators of Heart Arrested in Diastole. J. P. Morat and M. Petzetakis.—p. 208.
45 *Medical Surveillance of Prostitution at Paris During the War. L. Butte.—p. 210.
46 Roentgenoscopic Localization of Projectiles. E. Albert-Weil.—p. 212.

38. **Posterior Pericarditis with Adhesions.**—Delorme refers to the inflammation localized around the mouth of the aorta and the right trunk of the bifurcated pulmonary artery. He analyzes the anatomic conditions here, and the best modes of access and exploration with a projectile in the region.

41. **Uremia and Internal Secretions.**—Rémond and Minvielle report here experiments on rabbits undertaken to detect any possible protecting action from thyroid extract, suprarenal extract, parathyroid or kidney extracts in combating uremic intoxication. All displayed a more or less favorable action except kidney extract which seemed to aggravate conditions.

44. **Restoration of Arrested Heart Action by Stimulation of the Accelerators.**—Morat and Petzetakis found that stimulation of the accelerators, or even of one of them, with a moderate electric current may suffice to start the heart to beating anew when it has stopped in diastole under chloroform. First the right auricle and then the left auricle begin to contract, while the ventricle keeps in diastole. Then suddenly the ventricle starts its movements. The auricular contractions are faint at first. This phenomenon has been studied particularly on animals chilled to 23 or 17 C. The arrest of the heart action may last for five minutes or more; then stimulation of the accelerators, after a latent period of five or ten seconds, starts up the movements of the heart, even when the thorax is opened and artificial respiration has been suspended. The heart continued to beat for a time but then stopped finally. It could be started up again if the accelerators were stimulated anew within a minute or so. The heart movements were recorded by electrocardiography.

45. **Medical Surveillance of Prostitutes at Paris During the War.**—Butte is physician in chief of the municipal *Dispensaire de Salubrité* which has surveillance of prostitutes as its main task. Notwithstanding the difficulties from the scarcity of physicians left in Paris, strict oversight over venereal diseases in prostitutes has been maintained. During the first month of the war, 207 prostitutes were sent to the special infirmary to have venereal diseases treated; the preceding month 128 had been sent to the infirmary. From the beginning of the war to the end of 1916 the dispensary has a record of 205,643 medical inspections of prostitutes made by physicians, and they thus were able to detect 4,849 cases of venereal disease, including 970 cases of syphilis. Analysis of these figures shows that the number of prostitutes in brothels has kept about the same; 23,083 medical inspections were made, and only five cases of venereal disease discovered among them, including one of syphilis. This good record of the brothels he ascribes to the fact that they are forbidden to admit minors. This simple measure, he insists, should be generalized everywhere, as minors constitute a special danger in brothels elsewhere. The registered prostitutes living alone (5,893 Jan. 1, 1915; 3,538 Jan. 1, 1916), have had medical inspection 63,812 times for those who come regularly to the dispensary to be examined, and 108,989 times for those arrested for lack of a medical certificate or for other infractions of the police regulations. Among these women, 2,189 cases of venereal disease were discovered, including 508 of syphilis. This is a larger proportion than is the rule in times of peace, and the vigilance of the dispensary has made it possible to keep this large number of infected women from infecting others during their contagious period. The great danger is from nonregistered prostitutes, the numbers of whom have materially increased since the war. They include refugees, married women and munitions workers, and the dispensary has kept special oversight over such. In 9,759 medical inspections, 2,655 cases of venereal disease were discovered, including 462 of syphilis. This is double the proportion of peace times, and emphasizes anew the importance of keeping medical surveillance over clandestine prostitution. Special measures have been taken for prostitutes still under age. Since the war began these girls are arrested, brought to the dispensary, and if they are found to be suffering from venereal disease they are sent to the Saint-Lazare Hospital. When discharged as cured they are returned to their families or taken to the juvenile court which sends them to a reform institution. Here the girls are detained until their majority, under conditions rendering it impossible for them to disseminate venereal disease. Butte adds that on account of lack of appropriations it has been impossible to apply the much desired measure of keeping syphilitic prostitutes under treatment at the dispensary during the latent phase of syphilis. Until appropriations can be obtained for this purpose, syphilis continues its ravages. The army authorities detailed a couple of physicians to aid in the medical inspections afternoons, which has much facilitated the heavy work of the dispensary. It is handicapped by the calling to the colors of the assistants, and by its defective installation and organization and by the inadequate appropriations.

Journal de Médecine de Bordeaux

February, LXXXVIII, No. 2, pp. 23-40

47 *Pseudo Tuberculosis of the Lungs. J. Carles.—p. 23.
48 The Milk Supply and Dairy Hygiene. (Le lait et la puériculture.) L. Barthe.—p. 24.
49 War Wounds of Skull, Thorax, Abdomen and Spinal Cord. (Notes sur la chirurgie à l'avant. II.) Charbonnel.—p. 26.
50 Scarlatiniform Exanthem with Septicemia. Creyx.—p. 30.
51 Waste of Alcohol in Sterilizing the Hands. L. Barthe.—p. 34.

47. **False Pulmonary Tuberculosis.**—Carles refers to patients who cough and present all the signs of active tuberculosis, and yet the trouble is merely the spread downward of some chronic trouble in the nose. Sinusitis, rhinitis, adenoids, the tonsils, may be responsible. On the side on which the patient usually lies, the lung shows signs of involvement, especially at the hilus, and the diagnosis of tuberculosis seems certain. The sputum shows no tubercle bacilli and treatment of the nose, sinus or tonsils is soon followed by the retrogression of the lung symptoms, or a focus of sclerosis may persist indefinitely. True tuberculosis may become installed if the primary condition is allowed to go untreated. Carles has encountered several cases in the last year or two in which typhoid or paratyphoid bacilli kept up a chronic congestion in the lungs simulating tuberculosis. In a recent case a simple congestion of the apex during a typical paratyphoid fever, dragging through several weeks, presented the clinical picture of "galloping consumption." All returned to normal as the paratyphoid ran out its course. In another case of supposed pulmonary tuberculosis with hemoptysis and softening of the apex on both sides, the sputum has shown only pneumococci in the year or more the patient has been under observation. In these pneumococcus cases, inhalation treatment and tonics generally cured the patients completely in time.

Lyon Médical

January, CXXVI, No. 1, pp. 1-60

52 Compass for Locating Projectiles. C. Hervieux.—p. 1.

February, No. 2, pp. 61-108

53 Acute Yellow Atrophy of the Liver in Young Woman Working on Munitions. (Ictère grave attribué à la mélinite.) R. Pauly.—p. 61.
54 *Preventive Treatment of Inherited Syphilis with Salvarsan and Arsenobenzol Courses for Pregnant Women. M. Cons.—p. 63. Commenced in No. 1, p. 14.
55 Magnet to Aid in Extraction of Foreign Bodies in Air Passages, etc. (Quelques applications nouvelles des électro-aimants à courant continu ou à courant alternatif.) L. Léorat.—p. 72.
56 The Bacillus Serpens in Pulmonary Infections. A. Mary.—p. 77.

54. **Antisyphilitic Treatment of Pregnant Women.**—Cons relates that of five pregnant women with unsuspected syphilis, only two bore viable children and one of these soon died. The other woman had been given a dose of salvarsan twelve days before delivery and this child left the hospital apparently in good condition. Fourteen other pregnant women, mostly in the second stage of their syphilis, were given specific treatment during the pregnancy and all bore viable children. One child died a month later from a congenital heart defect; the others are all apparently in perfect health.

Paris Médical

February 10, VII, No. 6, pp. 121-136

57 Correction of Ankylosis of the Jaws from War Wounds. (Constriction des machoires par blessures de guerre.) L. Imbert and P. Réal.—p. 122.
58 Taking the Blood Pressure with Potain Manometer. (Comment le praticien doit prendre la tension artérielle.) L. Tixier.—p. 128.
59 Roentgenoscopic Localization of Projectile. J. Davalle.—p. 132.
60 *Simultaneous Measurement of Both Halves of the Chest. (Ruban métrique pour la mensuration simultanée des deux hémithorax.) Perrin.—p. 135.

February 17, No. 7, pp. 137-152

61 *The Abdominocardiac Reflex. (Essai sur l'un des facteurs de l'accélération cardiaque orthostatique.) Prével.—p. 138.
62 Device for Overcorrection of Paralysis in Vicious Attitude. (Prothèse musculaire fonctionnelle.) J. Privat and J. Belot.—p. 143.
63 *Vaccination against Typhoid Does Not Affect the Retina. (Les oculaires devant la vaccination antityphoidique.) E. Ginestous.—p. 150.

60. **Measurement of the Chest.**—Perrin slits an ordinary measuring tape lengthwise and fastens the two zero points together. When this is held in the middle of the spine and the other ends crossed in front, any difference in the size of the halves of the chest becomes evident at once.

61. **The Abdominocardiac Reflex.**—Prével applies this term to the mechanism causing the acceleration of the pulse on changing from the reclining to the upright position. The contents of the abdomen slide down and this induces by reflex action an acceleration of the pulse as the gastric ramifications of the pneumogastric are stretched. The mechanism is somewhat similar to the oculocardiac reflex. He gives a number of tracings to sustain this view, showing how supporting the stomach during the change from the horizontal to the erect position may arrest the reflex. He also lists the pulse findings in twenty persons under different conditions of rest, work and position.

63. **Vaccination Against Typhoid Does Not Affect the Eyes.**—Some cases of herpes of the cornea, oculomotor paralysis and retinal lesions, developing after vaccination against typhoid, have caused concern for fear the vaccination might be responsible for them. But closer analysis of the cases has always proved them to be merely casual coincidences, so that Ginestous reiterates that, outside of ocular lesions which are in themselves the manifestation or complication of some constitutional disease, there are no contraindications on the part of the eye to antityphoid vaccination.

Presse Médicale, Paris

January 25, XXV, No. 6, pp. 57-64

64 Forms of Chronic Tuberculosis of the Kidney. N. Hallé.—p. 57.
65 Sterilized Human Skull Flap to Close Defect in Skull. J. A. Sicard and C. Dambrin.—p. 60.
66 *Quantitative Test for Calcium in the Urine. C. Mayer.—p. 61.

66. **Quantitative Test for Calcium in the Urine.**—Mayer has worked out a rapid technic for this purpose which does not require a laboratory equipment and yet, he says, it is as reliable as the old tedious laboratory methods. He boils 200 c.c. of urine with enough ammonium carbonate to have all the lime and magnesia precipitated out in the form of carbonates and phosphates. Then he dissolves these with hydrochloric acid and precipitates with oxalic acid. The calcium oxalate is filtered out, and the amount of oxalic acid left unprecipitated is determined with potassium permanganate. No weighing is required, and several samples of urine can be thus tested in the course of an hour.

It takes about ten minutes to precipitate all the calcium and magnesium in the 200 c.c. of urine, boiling it with enough ammonium carbonate to answer the purpose. The precipitate is left a few instants to settle and then the supernatant fluid and then the precipitate are poured out on the filter, first boiling up the precipitate several times with water containing a little ammonia. The funnel is then placed over a flask gaged for 100 c.c., and a boiling 10 per cent. solution of hydrochloric acid is then poured over the filter. This dissolves the calcium and magnesium carbonates and phosphates. The filter is rinsed with a little boiling water. The fluid assembled in the gaged vessel is boiled a few minutes to expel the carbon dioxid. All the calcium and magnesium are now in the form of chlorids. This solution is neutralized with ammonia until a slight tendency to precipitation becomes manifest; this is counteracted with a few drops of acetic acid. Then he adds 30 c.c. of a decinormal solution of oxalic acid (that is, containing 6.3 gm. of crystallized oxalic acid to the liter), and the vessel is filled up to 100 c.c. In case of very large calcium content, more oxalic acid is required; 50 c.c. is certain to be enough. After thorough mixing, the fluid is left to settle in the graduated vessel. When the precipitate of calcium oxalate has all been thrown down, the clear fluid above is poured on the filter. In 50 c.c. of this filtrate, the amount of the oxalic acid not precipitated by a decinormal solution of potassium permanganate corresponds exactly, cubic centimeter to cubic centimeter, to the titrated solution of oxalic acid. If n equals the number of cubic centimeters of the permanganate used, then the number of cubic centimeters of the solution of oxalic acid having served to precipitate the calcium is 30 — 2 n. If to 1,000 c.c. of the oxalic acid solution correspond 2.8 gm. of calcium, then to (30 — 2 n) cubic centimeters will correspond

$$\frac{2.8 \times (30 - 2n)}{1{,}000} \text{ of calcium.}$$

For 1 liter of urine this figure would have to be multiplied by 5:

$$\frac{2.8 \times 5 \times (30 - 2n)}{1{,}000} = 0.014 \times (30 - 2n)$$

For practical use it is enough to use the last formula alone, substituting A for the number of cubic centimeters of the oxalic acid solution:

$$0.014 \times (A - 2n).$$

Progrès Médical, Paris

January 27, XXXII, No. 4, pp. 29-36

67 Association of Sulphur with Mercury in Treatment of Syphilis. M. Loeper, A. Bergeron and K. Vahram.—p. 29.
68 *Encircling with Wire for Contention of Scraps of Shattered Long Bone. (Cerclage au fil métallique dans le traitement des éclatements des os longs par projectiles de guerre.) M. Sénéchal.—p. 31.

68. **Encircling a Shattered Long Bone with Wire.**—Several illustrations show the utility and fine outcome of simply passing a wire around the long bone shattered by a projectile.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 27, XLVII, No. 4, pp. 97-128

69 *Skin and Venereal Diseases in Swiss Army. (Die dermatolog.-veneralog. Abteilung der Etappen-Sanitats-Anstalt Solothurn.) H. Merz.—p. 97.
70 Substitute for Sugar in Infant Feeding. (Nutromalt, ein Ersatzpraparat des Nahrzuckers.) A. Hotz.—p. 107.

February 3, No. 5, pp. 129-160

71 War Neuroses. (Im Nervenlazarett.) E. Sigg.—p. 129.
72 *Occupational Diseases and Industrial Poisoning. (Gewerbevergiftungen und Berufskrankheiten.) D. Pometta.—p. 147.

69. **Skin and Venereal Diseases in Swiss Army.**—Merz reviews the experiences at the special service for these affections at the Solothurn base hospital. There has been only a slight increase in the proportion of venereal diseases during the war, although Switzerland is surrounded on all sides by belligerents among whom venereal diseases are making havoc. There is reason to assume that the opportunities for infection will soon become more numerous in Switzerland, and he urges the necessity for strict regulation and medical oversight of prostitutes. Not only professionals, but every source of infection should be sifted out and made harmless. For this he advises compulsory treatment in a special clinic or private medical care under strict guarantees that treatment will be thorough. The men should be enlightened as to the dangers of every extraconjugal intercourse. He adds that the ignorance and indifference in this respect of large numbers of the men are almost incredible. They think that red cheeks and sound teeth guarantee them against infection. He deplores that the enlightenment was not made years ago. Practically nothing has been done in this line in Switzerland to date, he says. Partly from lack of initiative and partly from false modesty, no attempts at sexual enlightenment have been made, but no time should be lost now. Moral admonitions alone do not suffice.

72. **Industrial Diseases.**—Pometta is the chief medical officer of a Swiss accident insurance company and he here reviews the new legislation on workingmen's compensation for accidents and affections acquired at work. The Swiss legislature has recently made out a list of chemicals, etc., which expose to particular dangers in the industries, and has modified the law so that the affection in question need not be due exclusively, but only predominantly, to the toxic substance involved. Pometta adds that it is a difficult matter to estimate correctly all the phenomena entailed by a severe occupational intoxication. But every physician should be able to suspect industrial poisoning, and direct his examination accordingly. The new Swiss state insurance organization has begun to compile statistical and casuistic material on the subject. It is better equipped for this purpose than other states, as it provides for direct treatment, from the very first, instead of waiting for thirteen days as in Germany and other countries where social insurance is in vogue. As the compensation is paid in form of a pension, it will be possible to keep the injured workman under surveillance, and thus get the complete record of each.

Pometta cites authorities who emphasize, to begin with there is scarcely a [illegible] ness from industrial poicannot develop, with about the same symptoms, from some entirely different cause. He mentions, as instances, the resemblance between certain forms of arsenic poisoning and cholera, between toxic and other nephritis, between nervous affections of toxic and primary nature, and between stomach irritation from an alkali salt and chronic gastritis. The patient's statements are of no aid; often he has no suspicion of having been injured by anything about his work; the poison may have been disguised under some fancy name. Or the man may conceal his suspicions, not wishing to lose his job, or he may conceal other affections. The physician may have to contend with simulation, the man reproducing the symptoms he had watched in some mate, particularly as so many of the phenomena with intoxications are subjective. He warns further that idiosyncrasy is often an important factor in intoxications, and the physician should strive to detect the idiosyncrasy early, and get the man out from under this special noxious influence. The idiosyncrasy may be acquired. Certain chemicals, like certain diseases, increase the susceptibility, while others confer a kind of immunity. Autointoxication may also enhance the intensity of an industrial poisoning. This is especially true of alcohol; even a small amount may open the gates to the industrial poison. This is well known among manufacturers. In certain factories in the manipulation of certain chemicals known to have a special affinity for alcohol, only workmen known to be total abstainers are employed. In conclusion he remarks that the deepening of the diagnosis in the direction of etiology is not only becoming more and more important from the medical-biologic point of view, but it is demanded by the legislation of the day. The state requires it and has to rely on physicians for this.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 25, XXXVIII, No. 7, pp. 97-112

73 *Determination of Acetone Bodies in the Urine. (Nuovo metodo rapido di riconoscimento dei corpi acetonici dell'orina.) E. U. Fittipaldi.—p. 99.

January 28, No. 8, pp. 113-128

74 Paralysis of Left Recurrent Nerve from War Wound of Chest. N. Samaja.—p. 113.

February 1, No. 9, pp. 129-144

75 Hemolytic Jaundice Consecutive to Destruction of Lung Tissue from War Wounds; Two Cases. C. Oliva.—p. 129.

76 Immobilization of Fractured Clavicle by Fastening Hand on Opposite Shoulder. G. Onano.—p. 133.

73. **Improved Nitroprussid Test for Acetone Bodies in the Urine.**—Fittipaldi describes a modification of the usual tests for acetone in the urine which, he says, elicits an exclusively specific acetone reaction. It also shows up the diacetic acid, while the technic is simple, takes little time, the color reaction is durable, and the test is as sensitive as any of the current technics in vogue. He adds about 0.02 gm. of finely pulverized sodium nitroprussid to 4 or 5 c.c. of urine in a 12 c.c. test tube. They are mixed until the salt is entirely dissolved, and then he superposes on the urine, pouring it along the wall of the tube, 1 c.c. of ammonia and the whole is left untouched for fifteen minutes. There is then a colored zone between the two fluids. If this zone is yellow to chestnut color, the acetone content is within normal range. If the zone is of a more or less deep chestnut color, there are traces of acetone, but no diaceturia. If the zone is violet, there is considerable acidosis. In this case he mixes the fluid and adds acetic acid by the drop until the fluid is slightly acid. If the reddish purple tint throughout the whole disappears as the acid is added, we can be sure that there is more or less pronounced acetonuria, but without diaceturia. On the other hand, if the purple blends into a durable ruby red, there is diaceturia and probably also pronounced acetonuria in addition.

Policlinico, Rome

February 4, XXIV, No. 6, pp. 165-200

77 Treatment of War Wounds of the Skull. (La cura delle ferite craniche di guerra.) T. Pontano.—p. 165.

78 *Test for Sugar in the Urine. A. Angiolani.—p. 173.

79 Italian Precursor of Intratracheal Insufflation, 1703. (L'insufflazione intratracheala detta di Auer-Meltzer e di Baglivi.) G. Bilancioni.—p. 182.

80 *Treatment of Pleurisy with Effusion in Country Practice. M. Canali.—p. 187.

81 What the General Practitioner Should Know of Treatment of Ear, Nose and Throat. (Sul diritto alla ignoranza in fatto di otorino-laringologia.) G. Bilancioni.—p. 194.

78. **Estimation of Proportion of Sugar in the Urine.**—Angiolani gives some tables and describes a set of test tubes with various strengths of the Fehling reagent. On comparison with these it is easy to compute from the table the sugar content of the urine under examination.

80. **Treatment of Pleurisy with Effusion.**—Canali states that in his experience as a village physician he has treated about a hundred patients for pleurisy with effusion by evacuating up to 3 liters at a time and has had no mishaps from it in eighteen years, while benefit was marked in every case. He never attempts to introduce air, but sometimes reinjects subcutaneously 10 c.c. of the effusion. His patients all recovered promptly, and he does not know the extent to which this autoserotherapy cooperated in the cure as a rule. In a recent case, however, he is convinced that this was the main factor in the prompt recovery. Immediately after subcutaneous evacuation of 2 liters of fluid and reinjection of 15 c.c., the fever subsided, copious diuresis followed and sweating, with prompt and complete recovery. A previous thoracentesis, six days before, without the autoserotherapy, had been followed by immediate reproduction of the fluid. In other cases the temperature dropped by a crisis after evacuation of 2 liters of fluid plus the autoserotherapy. Canali commends this method in particular to country practitioners.

Riforma Medica, Naples

1916, XXXII, No. 50, pp. 1369-1396

82 Mirror Writing. (Sulla scrittura a specchio.) L. Siciliano.—p. 1380.

No. 51, pp. 1397-1424

83 Contracture of Joints from Peripheral Trauma. (Mioipertonie degli arti per traumi periferici.) G. Rummo and F. Ferrannini. —p. 1397. *Conclusion.*

84 Reaction Suggesting Anaphylaxis under Antitetanus Serum. G. Marsiglia.—p. 1404.

85 *Importance of the Vasomotor System in Injury from Freezing. (L'importanza del sistema vaso-motorio nella genesi del congelamento.) V. Neri.—p. 1406.

85. **Vasomotor Predisposition to Freezing Injuries.**—Neri shows that a vasomotor predisposition plays an important part in frostbite. His research suggests further that thyroid treatment might aid in prevention and also in treatment in the earliest stages. His work further confirms that a part once exposed to freezing is peculiarly predisposed for it to occur again.

Brazil-Medico, Rio de Janeiro

February 3, XXXI, No. 5, pp. 35-42

86 Nematode Parasites of Rodents. (Nematodeos parasitos de roedores.) L. Travassos.—p. 35.

87 *Beriberi or Beriberic Syndrome? C. Fraga.—p. 35. Conclusion. Commenced in No. 2, p. 9.

88 Heliotherapy in Brazil. A. Moncorvo Jr.—p. 37. To be continued.

87. **Beriberi in Brazil.**—Fraga remarks that there has been considerable confusion in Brazil as to the incidence of beriberi. Chagas recently demonstrated that cases of supposed beriberi in the Amazon region were merely instances of polyneuritis in persons with chronic malaria. Chagas admits that beriberi can occur in the Amazon district, but the cases he happened to encounter were all of this malarial type. Fraga states that beriberi seems to be endemic in his region, the Bahia district, but it is rare. In five recent years at the medical clinic in his charge 513 cases of intestinal helminths, or polyverminosis, as he calls it, were encountered, but only 5 cases of beriberi. The hospital at Bahia has recorded 914 cases in the last fifty years, averaging about 18 a year. The range was from 3 cases in 1869 to 42 in 1910. At the penitentiary, there have been 287 cases during these fifty years, but this included an epidemic of 112 cases in 1908 with mortality of 62. Since 1908 there have been only 18 cases with 8 deaths. In the Bahia insane asylum nearly all the inmates were affected in 1914, and only 66 were living of the 135 at the commencement of the year. The inmates were then transferred to more hygienic quarters, and all recovered. No new cases developed until 1914, when there was an epidemic of

30 cases with 16 deaths; in 1915, 15 cases with 4 deaths, and in 1916, 18 cases with 8 deaths. An epidemic of beriberi also broke out among the troops at a certain barracks in 1878 and 1880, but was stamped out by change of quarters. The epidemics of beriberi at Bahia have occurred exclusively in institutions. The evolution of the disease is more rapid in the dropsical type and slower in the paralytic, but a combination of both types is the rule at Bahia. The course is usually from one to six months but the frequent relapses may render it difficult to estimate the actual course. The multiplicity in the clinical forms, the variety in the manifestations and the gravity of the symptoms on the part of the vegetative nervous system, render differentiation and prognosis often difficult. The apparently most serious cases may recover as if by magic while the mildest cases may take a sudden fatal turn. It is evident, Fraga remarks in conclusion, that it is a disease of a certain geographical distribution, a conjunction of phenomena developing under the influence of the same cause.

Cronica Medica, Lima

January, XXXIV, No. 643, pp. 1-40

89 Morphin plus Atropin plus Pituitary Solution for Painless Labor. (Contribucion a la analgesia obstetrica por el estudio clinico de la formula No. 3 del Dr. B. J. S. Artola de Lima.) M. H. Vallenas.—p. 1.
90 Present Status of Tabes. E. Odriozola.—p. 20.
91 Errors and Dangers for Demography and the Medical Sciences of the Bertillon Method of Classifying Diseases. R. P. Sauri. —p. 25.

Semana Medica, Buenos Aires

1916, XXIII, No. 52, pp. 667-700

92 Vaccine Therapy. (La terapeutica esencial.) N. S. Loizaga.—p. 667.
93 *The Oculocardiac Reflex in the Insane. (El reflejo oculo-cardiaco en 721 enfermos mentales.) F. Gorriti.—p. 671.
94 *The Diet in the Tropics. J. G. Ruiz.—p. 674.
95 Subcutaneous Injections of Oxygen. A. Cetrangolo.—p. 678.
96 Case of Cutaneous Sporotrichosis. E. Accame.—p. 680.

93. **The Oculocardiac Reflex in the Insane.**—Gorriti mentions that Vernet and Petzetakis noticed that potassium bromid usually reduces the intensity of the oculocardiac reflex, and Gorriti found that a similar effect was evident when a few drops of a 10 per cent. solution of cocain were instilled into the eyes. Among the 721 insane inmates of the national asylum tested for the oculocardiac reflex, 2 had transient syncope for a few seconds, the patients falling to the ground as if suddenly stricken. These were among the 70 to whom the test was applied standing. Nothing of the kind was ever noticed in the hundreds to whom the test was applied while reclining. The reflex occurred as in normal conditions in 589; the reflex was inverted in 74, and there was no reflex action in 56. The response was more pronounced when the subject was erect. The whole series is tabulated according to the mental affection, but no connection with any special affections was evident. The response was normal in the 4 epileptics, 7 imbeciles, in a number of alcoholics, in cases of acute and chronic melancholia, and in cyclic insanity. In 20 cases of dementia praecox it was normal in 175, inverted in 16, and there was no response in 16. In 24 cases of vesanic dementia it was normal in 20, inverted in 3 and one gave no response. In 40 cases of delirium with delusions of persecution the reflex was normal in 34, inverted in 2 and absent in 4. Gorriti warns that the sex, age, height, interval since eating and character of the meal, the hour of the day, the position, and emotions are all liable to affect the response to the test. He cites Roubinovitch's report of examination of 200 insane for the oculocardiac reaction. His conclusion was that the absence of the reflex is a sign of an organic lesion, possibly inherited or acquired syphilis. In Gorriti's series the only patients giving absolutely no response were the above mentioned 16 with dementia praecox, 11 with subacute alcoholism with delusions of persecution, 2 with the same plus signs of degeneracy, 2 with the confusional type of insanity of alcoholic origin, one chronic alcohol addict with delusions of persecution, 3 with alcoholic melancholia, 3 with alcoholic mania, 1 with vesanic and 2 with senile dementia, 4 degenerates with melancholia, 2 with the latter plus maniacal excitement, 1 idiot, one paranoiac, 1 epileptic idiot, 4 with delirium and delusions of persecution and one with religious mania. In the whole series there was no type of mental disease giving exclusively negative findings.

94. **The Diet in the Tropics.**—Ruiz is chief of the department of food hygiene in the national public health service of Argentina. He emphasizes that a laboring man in a tropical country does not need as much by 500 calories as in the temperate zone. His food should be rich in carbohydrates, scanty in fat, and moderate in proteins. It would be better, he asserts, if laborers on the ranches and in the forests were paid partly in food supplies instead of in cash, so that they would be sure of nourishing food instead of wasting their wages on liquor and improper food. These laborers at present have no idea of thrift and hygiene, and the state should make laws to insure their getting proper food.

Siglo Medico, Madrid

January 27, LXIV, No. 3294, pp. 49-64

97 *Oxaluria. T. Hernando.—p. 50.
98 Treatment before Diagnosis is Complete. (El tratamiento de las enfermedades desconocidas y la terapeutica sintomatica.) R. R. Villanova.—p. 60. Concluded in No. 3295, p. 74.

February 3, No. 3295, pp. 65-80

99 Spanish Literature on Parasitology. P. L. Marcos.—p. 67.
100 Asystoly. F. G. Aguilar.—p. 71.

97. **Oxaluria.**—Hernando has found oxalate crystals in the stools of patients with mucous colitis or gouty-rheumatic trouble. He thinks that oxalic acid may play a part in the joint troubles of gout, and in any event that it is better to prevent the accumulation of oxalic acid in large amounts in the tissues. Vegetables and fruit rich in oxalic acid should be avoided or else they should be boiled and the water thrown away. Meat containing much nuclear substance or gelatin and other food that aids in production of oxalic acid should also be avoided. Rice, potatoes and bread contain magnesia and are useful. A tendency to hyperchlorhydria should be combated as this favors absorption of oxalic acid. In De Sandro's case, the oxaluria stopped as soon as starchy foods were avoided. In treatment, calcium salts after meals favor the production of the insoluble calcium oxalate which prevents absorption of the oxalic acid. Magnesium salts neutralize the gastric acidity and impede precipitation of the oxalic acid in the urine. Sodium and magnesium citrate also promote the solution and elimination of oxalic acid. Maguire has also called attention to sodium acid phosphate as a solvent for oxalate concretions.

Russkiy Vrach, Petrograd

1916, XV, No. 49, pp. 1153-1176

101 *Major Operations Close to the Firing Line. V. A. Oppel—p. 1153.
102 *Sugar Exalts Virulence of Germ of Gas Gangrene. (Ob aggressivnosti glucosi. Sluchai gazovoi gangreni.) A. A. Bogomoletz.—p. 1163.
103 Management of War Wounds of the Vessels and Traumatic Aneurysms. N. A. Dobrovolskaya.—p. 1165. Continuation.

101. **Surgery at the Front.**—Oppel pleads for having the most competent surgeons and surgical consultants close to the firing line so that major operations can be done at once as needed. This presupposes of course proper surgical equipment and provisions for caring for the men on the spot afterward. The less reliance that is placed on transportation and on surgical measures later, at the base hospital, the better. He mentions in the report of his experiences at the front since the beginning of the war, that he had never seen or heard of a case of gas gangrene developing in a skull wound. The conditions as to circulation and the consistency of the tissues evidently do not favor gas gangrene.

102. **Sugar Enhances Virulence of Germ of Gas Gangrene.**—Bogomoletz cultivated anaerobically a germ from a case of gas gangrene which responded to all the tests characteristic of Fraenkel's *Bacillus emphysematosus*. It did not seem to be pathogenic for rabbits unless sugar was injected along with the culture. When this was done, the animals all developed typical and speedily fatal gas gangrene. Injecting 1 c.c. of a bouillon culture on the right and left side of a rabbit, one with addition of 0.2 gm. sugar and the other without, showed absolutely no reaction on the latter side while typical necrotic gas gangrene developed on the sugar side.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 20, I, No. 3, pp. 133-200

104 *Test for Motor Functioning of the Stomach. (Is de rest-bepaling volgens Mathieu en Rémond betrouwbaar?) J. W. T. Lichtenbelt and E. H. Jannink.—p. 142.
105 *Research on the Physiology of the Sense of Taste. (Smaakgewaarwordingen, waarop door andere, specifiek ongelijke smaakgewaarwordingen invloed wordt uitgeoefend.) J. H. Kremer.—p. 149.
106 *Intravenous Magnesium Sulphate Treatment of Tetanus. C. A. Cammaert.—p. 158.
107 Incarcerated Hernia in a Diabetic. W. F. Gnirrep.—p. 162.

104. **Estimation of Motor Functioning of the Stomach by Mathieu's Method.**—This communication from Talma's clinic at Utrecht reports personal experiences with Mathieu's method and summarizes the published reports of others' experience. The consensus of opinion is all in favor of the reliability of the Mathieu technic, not only theoretically but practically. The findings can be accepted with confidence. Mathieu's familiar method is to aspirate part of the stomach content and record its acidity. Then a given amount of fluid is poured into the stomach and is withdrawn again, and the acidity of this diluted remainder is determined likewise. By comparing the findings, the original quantity of chyme in the stomach can be estimated. When this technic is applied after a bouillon test meal, and then 500 c.c. of water are used for the afterrinsing, to ensure rinsing out the pylorus region, the findings can be relied on. If more than 500 c.c. water is used, it is liable to be passed on into the bowel. The test is usually made with 200 c.c. of water and this is not enough.

105. **The Sense of Taste.**—Kremer discusses the mechanism of the sensation of taste, and the influence on the perception of the taste of one article by other, specifically unlike articles. He discusses further the sense of taste as modified by some preceding application. The work issues from the Physiologic Institute at Amsterdam.

106. **Magnesium Sulphate in Tetany.**—Cammaert injected intravenously 50 c.c. of a 10 per cent. solution twice a day in a case of tetanus in a young man. The symptoms of tetanus had developed about five days after a rusty nail had pierced one of his toes. There were no further general spasms after the first injection of the magnesium sulphate, and all the symptoms gradually subsided to complete recovery by the end of the second week. The drug was so strikingly effectual in this case that Cammaert suggests that it might prove useful also in eclampsia, in uremic convulsions, and for children with convulsions from whooping cough or other cause.

Norsk Magazin for Lægevidenskaben, Christiania

February, LXXVIII, No. 2, pp. 145-280

108 *Cancer of Various Organs at Different Ages. (Statistik over kræft. Kræft i ung alder.) F. Harbitz and E. Platou.—p. 145.
109 *Paroxysmal Hemoglobinuria. C. Johannessen.—p. 179.
110 Intraperitoneal Rupture of the Bladder. O. Borgen.—p. 214.
111 *Complications of Gastro-Enterostomy. S. Widerøe.—p. 218.

108. **Cancer at Different Ages.**—Harbitz and Platou analyze the 2,101 cancer cases examined at the Christiania Institute for Pathologic Anatomy in the last fifteen years. The list includes 765 sarcoma cases. In 385, necropsy records were available, in the others the excised tumor and the clinical history only. Charts and tables present the statistics in graphic form, especially with reference to the 71 cases in young people, that is, under 30. The curve for the sarcomas shows 7 congenital, 61 in children under 10, 85 between 10 and 20, and the others scattered almost evenly through the other decades, the maximum, 134, between 40 and 50. The sexes are about equally represented. With carcinoma, on the other hand, the women far outnumber the men, 1,304 to 797, on account of the 481 mammary cancers and 256 uterine cancers. There were 5 cases of carcinoma in the young between 10 and 20, and 66 between 20 and 30, including 47 women and 19 men. One boy of 12 died from a primary carcinoma of the liver. In this as also in a case of carcinoma of the liver in a 17-months infant there was pronounced cirrhosis of the liver, but this was not apparent in a third case, a young man of 19, who also succumbed to cancer of the liver. There was nothing to suggest a teratoid tumor in either case. Another youth of 18 had two cancer nodules in the appendix. A carcinoma of the rectum was found in the cadaver of a man of 28, and cancer of the colon in a woman of 28. Besides these, a small "carcinoid" tumor was found in the small intestine of a 3 months' babe, and five similar tumors in the ileum of a man of 31. A girl of nearly 16 had a large ovarian tumor removed. It had been causing symptoms for about a year. Cancer was also found in one ovary in 4 young women between 20 and 25. Mammary cancer was encountered in 17 young women of about this age, and uterine cancer in 10. In the mammary cases in the younger women the malignant disease involved both breasts from the start. In 5 cases the cancer had developed on the face, nose and scalp. These patients were men of 27 and 34, a boy of 16 and girl of 13 with cancers of the nose, and a woman of 25 with cancer of the scalp that had been eight years developing. The face cancers had developed on an ulceration in the face starting at the seventh and twelfth years. In conclusion they describe the necropsy findings in a case of scirrhous cancer of the stomach in a man of 20.

109. **Paroxysmal Hemoglobinuria.**—Johannessen presents a summary of our knowledge to date of paroxysmal hemoglobinuria, and the various theories proposed to explain it, and describes in detail a case from his own practice. The man of 59 had a history of old syphilis. His attacks of hemoglobinuria during cold weather incapacitated him for work of any kind. Johannessen gave him a thorough course of antisyphilis treatment, and this seems to have cured permanently the tendency to hemoglobinuria. He has had no attacks during the two years since, and his earning capacity has been entirely restored. The autolysin seems to be still present in his blood, however, and the lymphocytosis still persists. Johannessen intends to give him a course of cholesterin if the attacks of hemoglobinuria should return. Lindbom has reported that cholesterin is able to check hemolysis under the influence of saponin, cobra venom, etc. The action of cholesterin is transient however; it lasts only as long as the cholesterin is in the body.

111. **Complications of Gastro-Enterostomy.**—Widerøe refers to hemorrhage, diarrhea and peptic ulcer as well as to the vicious circle. He had a case in which less than three hours after the posterior retrocolic gastro-enterostomy the stomach nearly filled up with blood from two small gaping arteries close to the first suture in the mucosa. These were ligated through a small transverse incision in the anterior wall of the stomach, and there was no further trouble. A well drawn up continuous suture obviates any bleeding from this source. Widerøe agrees with Rovsing that it is better not to trust to clamps, as this may mask conditions permitting hemorrhage after the clamps have been taken off. The pressure from the clamp in itself is liable to entail bleeding later. He reviews the literature and statistics on the vicious circle, relating a case of the typical symptoms coming on two and a half days after the gastro-enterostomy. The abdomen was opened again and nearly the whole of the small intestine was found protruding through a slit in the mesocolon. The incarcerated bowel was cyanotic but recuperated at once as soon as released. To avoid mishaps of this kind, any slits in the mesocolon must be sutured. If the vomiting after a gastro-enterostomy persists after lavage of the stomach and changes of position, no time should be lost before opening up the abdomen anew. In case of need, a supplementary anastomosis between duodenum and jejunum is better than operating anew on the stomach as a rule. He has never known of diarrhea or peptic jejunal ulcer developing after a gastro-enterostomy in his service. The gastro-enterostomy is always made by the posterior retrocolic technic, with the shortest possible loop. He cites numerous statistics all showing that complications after a gastro-enterostomy are rare. Van Roojen compiled fifty-two cases of peptic ulcer after anterior gastro-enterostomy and twenty-five after the posterior operation. The relative proportion was much less after the posterior operation. But no technic excludes all danger of peptic ulcer. Medical-dietetic treatment afterward is indispensable, especially when there is a tendency to hyperacidity. Widerøe insists on a month in bed after the gastro-enterostomy in case of extreme hyperacidity.

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